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REGIONAL DIFFERENCES IN PRODUCTIVITY, PROFITABILITY AND GROWTH: A PILOT STUDY[1]

1. Introduction

In spite of the vast amount of theoretical and applied economic research on international differences in productivity, profitability and economc growth, comparatively little attention has been given to such differences between regions in one country. This neglect is difficult to understand because the simplest way of increasing national income in a country as a whole, at least in the short run, is to increase economic expansion in those of its regions where growth has been slowest and where, presumably, there is a greater chance of finding unused capacity and unemployed labour. The reasons for not pursuing this line of thought are partly due to the widely held belief that the economic cost of such expansion would be excessively high. In the United Kingdom it is admitted that further expansion in the Midlands and in the South might encounter external diseconomies and it is recognised that the absorption of unemployed workers in the relatively depressed regions elsewhere would reduce national assistance payments and unemployment benefits, but it is still maintained that the costs of directing expansion away from the Midlands and the South are too high. This belief is surprisingly strong in view of the general absence of information on regional cost differences. In this paper we present evidence on the differences between productivity, profitability and growth in one region, Scotland, and the whole United Kingdom. In principle, the

[1] We wish to acknowledge our debt to the Board of Trade and to the National Institute of Economic & Social Research for providing data from their files of company accounts and to Dr. C. E. V. Leser for comments on an earlier draft. However, they are in no way responsible for the views expressed here.

method used here may be applied to other regions, so the present paper may be regarded as a pilot study in technique in addition to being a contribution to the current discussion of Scottish economic development.

Prospects of profitability and growth are likely to be important influences on the location of industry, and these in turn are affected by productivity of labour, for example. In this study each of these variables is considered and a comparison made between the average performance of comparable firms and industries in Scotland and the United Kingdom. It should be stressed that we are trying to compare like with like as far as possible in an attempt to assess the effects of location on performance: we are not comparing all Scottish industry with all United Kingdom industry.

2. Profitability

Given reliable and comparable figures the measurement of the relative profitability of operating in one area compared with another should be a good indicator of the net advantage of producing in that location. If for example, the differences in transport costs, labour productivity, industrial disputes and other locational factors were seriously disadvantageous to Scotland we should expect to find that firms and industries here would be less profitable than their opposite numbers in the United Kingdom as a whole. If in practice Scottish firms are not less profitable then these frequently alleged locational disadvantages cannot be important or are offset by other factors.

Now the *Glasgow Herald* regularly publishes a summary of the accounts of all Scottish companies quoted on the Stock Exchange. The *Economist* publishes a similar summary for quoted companies in the United Kingdom as a whole and a comparison may be made for the two sets of companies from the second half of 1953 to 1959. The ratio of gross trading profit to capital employed, defined as issued capital plus debentures plus reserves, over the six and a half years in question was 20·4 per cent. for the Scottish quoted companies and 20·9 per cent. for the U.K. quoted companies. The difference of 0·5 per cent. is small enough to be explained by the different accounting[2] approaches adopted by the *Glasgow Herald* and the *Economist*, or by the sampling error involved in using these samples of quoted companies to represent the whole populations of Scottish and United Kingdom firms.

[2] The *Glasgow Herald* figures are on an unconsolidated basis so that subsidiaries appear under their own names. The consequential double counting of some capital is thought to make for lower profit rates compared with the figures of the *Economist*.

The conclusion suggested by these figures is that there is no obvious difference on the average between the profitability of Scottish companies and United Kingdom Companies. The main limitation of this conclusion is that it relates only to the firms large enough to

TABLE I

GROSS PROFITS PER EMPLOYEE IN MANUFACTURING INDUSTRIES IN SCOTLAND AND THE UNITED KINGDOM, 1949 AND 1957[a]

Gross profit per employee £	No. of observations	
	Scotland	United Kingdom
−50 and below 0	1	—
0 „ „ 50	2	—
50 „ „ 100	2	2
100 „ „ 150	4	6
150 „ „ 200	12	9
200 „ „ 250	10	9
250 „ „ 300	5	10
300 „ „ 350	2	5
350 „ „ 400	4	2
400 „ „ 450	3	3
450 „ „ 500	1	2
500 „ „ 550	1	0
550 „ „ 600	2	0
600 „ „ 650	0	0
650 „ „ 700	1	2
700 „ „ 750	0	1
750 „ „ 800	0	2
800 „ „ 850	1	—
Total	51	53
Mean (£s)	264	292
Standard Error (£s)	23	23

Source: Census of Production.

[a] Extreme observations over £850 have been ignored. This reduces the means and the dispersions of the two distributions and on the whole weights the test *against* the null hypothesis of no difference between the two means.

have a stock market quotation which, however, although few in number, earn about 70 per cent. of all profits in manufacturing. Other limitations relate to the *Glasgow Herald* definition of 'Scottish' and

the treatment of companies with overseas interests.[3] The next two comparisons are free of these limitations, but of course subject to others.

The Census of Production gives figures of gross output (sales), net output (sales minus raw materials and indirect taxes), wages and salaries for each manufacturing industry in the United Kingdom and for Scotland subject to the confidentiality rule which forbids publication where investigators might be able to identify data relating to specific firms in an industry.[4] The Census figures for 1949 and 1957 are based on sample returns from establishments (plants) and the Scottish figures simply relate to those establishments in Scotland. These Census figures may be regarded as sample information in other respects; the two years 1949 and 1957 are a sample from many different time-periods, and so are the industries for which comparisons are possible. Moreover, the actual figures which a firm enters into its Census return, bearing in mind the many alternative ways of valuing stocks, work-in-progress, depreciation and the various accounting years, are in effect a sample from a much larger population of possible answers which firms could have given to the Census questions.

The difference between net output and wages and salaries may be regarded as an estimate of gross profits, including depreciation, even though it contains selling costs. Figures of employment are also given so that it is possible to compare gross profits, as defined, per employee of 27 Scottish manufacturing industries with their counterparts in the United Kingdom as a whole in each of the years 1949 and 1957, giving a maximum of 54 observations for each country. The average gross profit per employee in Scotland for the two years in question was £264, with a standard error of $\pm$£23. The corresponding average for comparable industries in the United Kingdom as a whole was £292, with a standard error of $\pm$£23.

It can be seen from Table I that most of the observations lie below the arithmetic mean illustrating the usual positive skewness of economic size distributions. It can also be seen that the observed difference between the two means of £28 is small compared with the standard error of £23 for each mean and cannot be regarded as significant.[5] The negative conclusion that a difference between average profitability in Scottish and United Kingdom industry is not proven is the safest conclusion to draw from this comparison, but if a more definite answer is required we should say that in our opinion profit-

[3] Many of the *Glasgow Herald's* 'Scottish' companies (e.g. J. & P. Coats) have large interests outside Scotland and overseas.

[4] A list of these industries is given in Appendix I.

[5] Cf. Appendix II.

ability in comparable Scottish and U.K. industries seems about the same.

To obtain further evidence on comparative profitability, a random sample of fifty Scottish business units[6] was selected from those included in the *Glasgow Herald* summaries but excluding all subsidiaries, non-manufacturing companies, and companies with important activities outside Scotland. Each Scottish unit was matched by an English unit in the same industry group and in the same size class from the files of

TABLE II

THE PROFITABILITY OF SCOTTISH AND ENGLISH COMPANIES, 1950-8[a]

Profitability %	Scottish observations	English observations
−20 and below −15	—	3
−15 „ „ −10	1	5
−10 „ „ 5	3	4
− 5 „ „ 0	3	4
0 „ „ 5	21	9
5 „ „ 10	73	92
10 „ „ 15	124	92
15 „ „ 20	107	58
20 „ „ 25	49	92
25 „ „ 30	38	50
30 „ „ 35	15	33
35 „ „ 40	7	4
40 „ „ 45	4	2
45 „ „ 50	2	1
50 „ „ 55	2	—
Total	449	449
Mean	16·3%	16·6%
Standard Error	± 0·44%	± 0·48%

[a] One extreme observation has been ignored.

standardised consolidated accounts prepared by the National Institute of Economic and Social Research and the Board of Trade. Figures of gross profit, gross fixed assets, and working capital (current assets less current liabilities) were extracted for each business unit for each year 1949 to 1958 and the ratios of gross profits to the sum of the other two figures were used as estimates of profitability. There was a maximum of 450 observations for each economy.

[6] A business unit consists of a parent company plus all subsidiaries in which it has a majority of votes. A list of these business units is given in Appendix I.

Over the whole nine years, the average profitability of Scottish companies was 16·3 per cent., with a standard error of ±0·44 per cent. The corresponding figures for English companies were 16·6 per cent. and ±0·48 per cent. The submission of the results to a *t*-test showed that the observed difference between the sample means was too small to indicate a difference between the two populations of similar Scottish and English manufacturing companies.

Three different measures have shown that differences in average profitability of similar firms and industries in Scotland and the United Kingdom are very small: so small in fact that it is not possible to assert with any confidence that there is a difference. In the absence of any other information, a reasonable assumption to make when comparing profitability of similar firms and industries in Scotland and in the whole U.K. is that profitability is much the same.

3. Growth

It is probable that entrepreneurs are also motivated by the desire to expand. Accordingly the suitability of an economic environment for the attainment of a satisfactory rate of growth may have an important influence upon the willingness of businessmen to shift to or start new enterprises in Scotland.

If the Scottish environment were in any way unfavourable to economic growth we should expect Scottish firms to spend less on fixed assets than their English counterparts. We should also expect Scottish industries to expand their employment by less than the corresponding expansion in the United Kingdom as a whole. In fact neither of these measures reveals a statistically significant difference between Scotland and the United Kingdom.

The average percentage increase of employment between 1949 and 1957 for the same 53 industries used in Table I was 5·4 per cent. with a standard error of ±3·42 per cent. The figures for the corresponding United Kingdom industries were 10·4 and ±3·47 per cent. The difference between the two means of 5 per cent. seems quite large. Indeed, growth in United Kingdom appears double that in Scotland. But if we think of a mean plus or minus three standard errors, or at least plus or minus two standard errors, it is quite likely that the two means could have been calculated from samples drawn from the same population. There was a very wide disparity of growth in these industries —the standard deviations were respectively 17·5 per cent. and 17·7 per cent.—and against this background a difference of 5 percentage points is negligible.

For each year from 1949 to 1958 the annual percentage change in gross fixed assets plus working capital was calculated for the samples of Scottish and English firms used in Table II. The average change for the Scottish companies was 9·5 per cent., with a standard error of ±0·34 per cent., whereas the corresponding figures for the English sample were 9·9 per cent. and ±0·36 per cent. Once again the difference between the two means could not be regarded as significant after the application of the usual tests of significance.

Another measure of growth was used, the ratio of expenditure on fixed assets to the total gross fixed assets of the previous year. On the average over the nine years this ratio was 10·4 per cent. for Scottish companies, with a standard error of 0·39 per cent. The corresponding figures for English companies were 10·1 per cent. and 0·41 per cent., showing no significant difference between the two averages.

With growth as with profitability the evidence cannot be taken to demonstrate a difference between the two regions. If any difference does exist the evidence would seem to indicate that it must be very small.

4. Productivity

The level of labour productivity in an industry is likely to be one important influence upon the profitability of that industry. Previous studies based on the 1935 Census of Production by H. W. Singer and C. E. V. Leser[7] have indicated that productivity per man year in Scotland is lower than in England. Their analysis showed that this conclusion was largely independent of the differences in the industrial structure of the two regions or even in the specialisation within the trades.[8] They concluded that the observed difference in output per man year in manufacturing industry between Scotland and the United Kingdom must be due to special factors depressing productivity in Scotland and raising it in England. They noted several special factors which might explain it independently of the relative efficiency of industry in the two areas: different levels of activity in the two areas (Scotland had a much higher level of unemployment in 1935 than the U.K. average), and the effect of high wages and prices in the London region causing a higher value of net output and consequently higher value productivity in the English figures.

From the viewpoint of location it is the performance of each industry rather than of the economy as a whole which is important.

[7] H. W. Singer and C. E. V. Leser, 'Industrial Productivity in England and Scotland.' *Journal of the Royal Statistical Society*, Vol. CXI. 1948. C. E. V. Leser, 'Output per Head in Different Parts of the United Kingdom,' *J.R.S.S.*, Vol. CXIII. Part II, 1950.

[8] C. E. V. Leser, op. cit., pp. 211-12.

Consequently it is the comparison of the unweighted average for the same industries which gives the relevant comparisons. In Table III below the distribution of 53 observations from the same industries in Scotland and the United Kingdom over a range of values of net output

TABLE III

NET OUTPUT PER EMPLOYEE IN SCOTLAND AND THE UNITED KINGDOM, 1949 AND 1957

Net output per employee £	No. of observations	
	Scotland	United Kingdom
300 - 400	6	1
400 - 500	9	10
500 - 600	10	11
600 - 700	5	6
700 - 800	8	5
800 - 900	4	10
900 - 1000	4	2
1000 - 1100	3	3
1100 - 1200	0	2
1200 - 1300	0	2
1300 - 1400	3	1
1400 - 1500	0	0
1500 - 1600	1	0
Total	53	53
Mean (£s)	695	722
Standard Error (£s)	± 39	± 34

Source: Census of Production.

per employee is set out. The average value of net output per employee in the Scottish group, taking the two years 1949 and 1957, was £695 with a standard error of ±£39. The United Kingdom average was £722 and the standard error ±£34. Once again the standard errors were so large compared with the difference between the means that it would be difficult to accept the difference as proved.

5. GENERAL CONCLUSIONS

This paper set out to examine the problem whether there were any significant differences between the economy of a region, Scotland, and the whole of the United Kingdom as environments for manufacturing industries. It was assumed that any important differences would show

up in differences in the past performances of like firms and industries in the two regions, particularly in their comparative profitability and growth in a recent period, 1949 to 1957.

Examination of the available data revealed differences in the arithmetic means for the groups being compared, but these differences were so small that, in view of the sample nature of the data it would be difficult, certainly for any one of them, to say that they demonstrated a significant difference in performance in the two economies.

However, in 6 measures out of 7 there was a slight advantage in favour of the U.K. This raises difficult intuitive arguments.[9] Some economists would regard this as evidence to support the view that Scotland's economic environment was less favourable to economic growth than the U.K., even if this view meant rejecting the statistical tests of difference as a guide to policy. Unfortunately, economists' intuitions often differ and other economists would argue that if similar firms and industries are compared it is to be expected that no significant differences in profitability or growth will emerge. In view of this conflict of intuitions the only firm conclusion to draw from this analysis is that we have been unable to disprove the null hypothesis that there is no difference between profitability, growth and productivity in Scotland on the one hand and in the U.K. on the other. If we may contribute to the intuitive arguments we should say that a lead of 6 to 1 in favour of U.K. is irrelevant; there is a very high correlation between the various measures and a consistent result is not surprising. The important conclusion is that no significant differences have been found, when like-with-like comparisons are made between firms and industries in Scotland and in the United Kingdom.

It must be emphasised that this result cannot be applied to the two economies as a whole. Indeed provisional findings are that there are significant differences between the performance of manufacturing industry in Scotland and the U.K. and that this can probably be attributed to differences in the weighting of industries in Scotland and the U.K. That is, a higher proportion of employment in Scotland is in the less profitable and declining industries than is the case in the United Kingdom as a whole which is the reason why Scotland needs new industries. But this is another story.

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[9] It also raises a further statistical argument, which is not considered here, namely the possibility of a significant difference between a linear combination of profitability, growth and productivity for Scotland and the United Kingdom.

Appendix I

1. Census of Production industries for which a comparison between Scotland and the United Kingdom has been made in Tables I and III.

Brick and Fireclay
Building Materials
Iron and Steel (Melting and Rolling)
Iron Foundries
Shipbuilding and Repair
Aircraft Manufacture and Repair
Railway Locomotive Shops
Railway Carriages, Wagons and Trains
Nail, Screw and Wire Forgings
Wire and Wire Manufacturers
Cotton Spinning and Doubling
Woollen and Worsted
Jute
Hosiery and other Knitteds
Textile Finishing
Leather (Tanning and Dressing)
Tailoring and Dressmaking
Cocoa, Chocolate and Sugar Confectionery
Brewing and Malting
Wholesale Bottling
Spirit Distilling
Timber
Furniture and Upholstering
Paper and Board
Newspaper and Periodical Printing and Publishing
Printing and Publishing, Bookbinding and Engraving
Rubber

2. Matched pairs of quoted business units for which comparisons have been made in Table II.

	Scotland	*Rest of United Kingdom*
1	Southhook Potteries	Winn (P) (Barking)
2	Craig and Rose	Coleman and Company
3	Highgate (Hugh) & Co.	Green (Harry)
4	Cockburn & Co.	Fleetwood Paints
5	Atlas Steel Foundry & Engineering Co	Chamberlin & Hill
6	Federated Foundries	Glover and Main
7	Smith & Wellstood	United Flexible Metallis Tubing Co.
8	James Howden & Co.	Heenan & Froude
9	Kincaid (John G.) & Co.	Hopkinsons
10	Mavor & Coulson	Newall Engineering Company
11	Mirrlees Watson & Co.	Stothert & Pitt
12	Scottish Machine Tool Corporation	Superheater Company (The)
13	Stephen (Alexander)	Walmsleys (Bury)
14	Sterne (L.) & Co.	Whessoe
15	Denny, William & Brothers	Roneo
16	Main (A. & J.) & Co.	Prince of Wales Drydock Co., Swansea
17	Peebles (Bruce) & Co.	Aeronautical & General Instruments
18	North British Locomotive Co.	Raleigh Industries
19	Bruntons (Musselburgh)	Davis & Timmins
20	Rivet, Bolt & Nut Co.	Garrard & Co.
21	Shanks and Co.	Savory and Moore
22	Boase Spinning Co.	Carpet Manufacturing Co.
23	Jute Industries	Lister & Co.
24	Paton (William)	Robinson and Pickford (1928)
25	Stoddard (A. F.) & Co.	Tatton (William) and Co.
26	United Turkey Red Co.	Wolsey
27	Widnell (Henry) & Stewart	Bridport Industries
28	Westburn Sugar Refineries	Terry (Joseph) & Sons
29	Campbell (Archibald) Hope & King	Aylesbury Brewery Co.

Scotland	*Rest of United Kingdom*
30 Dryborough & Co.	Free, Rodwell & Co.
31 Scottish Brewers	Truman, Hanbury, Buxton & Co.
32 Younger (George) & Son	Woodheads Brewery
33 Lang Brothers	Flint & Co.
34 Clyde Paper Co.	Colthrop Board & Paper Mills
35 Culter Mills Paper Co.	East Midland Allied Press
36 Galloway (John) & Co.	Hook (C. Townsend) and Co.
37 Guardbridge Paper Co.	Industrial Newspapers
38 Morrison & Gibb	Novello & Company
39 Outram (George) & Co.	Portsmouth & Sunderland Newspapers
40 Valentine & Sons	Solicitors' Law Stationery Society
41 Weir (J. A.)	Hope (Thomas) and Sankey Hudson
42 Macniven and Cameron	Midland Educational Co.
43 Aberdeen Combworks	Austin (F) (Leyton)
44 Rowan and Boden	Ditchburns
45 Dundee Linoleum Co.	Dunster (John) & Son
46 Mowat (Wm.) & Sons	Hermetic Rubber Co.
47 Tayside Floorcloth Co.	Wake & Dean
48 Thornton & Co.	Norris (C. W.)
49 MacBean (Edward) & Co.	Airscrew Company & Jigwood
50 Stuart (A. A.) & Sons (Glasgow)	Turriff Construction Corporation

Appendix II

In each comparison between Scotland and the United Kingdom the two variances of the respective distributions were subjected to an *F*-test. If they did not differ at the 5 per cent. level of probability, the two means were subjected to a *t*-test. If the variances differed, the two means were subjected to a Welch-Aspin test.[10] In no case was the difference between the two means found to be statistically significant at the 5 per cent. level. In sections 2·8 and 3·3 the results of the tests are mentioned, for the samples are drawn from independent populations and appear to be approximately normally distributed. These conditions are not satisfied in the other comparisons so the result of the tests have not been mentioned.

However, if we argue that the Scottish population of industries is very small compared with that of the United Kingdom so that it is roughly independent, and if we consider that the samples could have come from near normal populations, it is worth noting that no difference between Scottish and United Kingdom means emerges which is statistically significant at the 5 per cent. level.

[10] B. L. Welch, 'The generalisation of "Student's" problem when several different population variances are involved.' *Biometrika* (1947) **41**, 361. A. A. Aspin, 'Tables for use in comparisons whose accuracy involves two variances, separately estimated,' *Biometrika* (1949) **36**, 290.

ADAM SMITH'S THEORY OF MORAL SENTIMENTS

I

ADAM SMITH'S *Theory of Moral Sentiments* was published two hundred years ago. It brought him fame in his own day. But since then the book has been overshadowed by its successor, and is today read only by specialists, and by a few curious readers of the *Wealth of Nations*. It certainly deserves such study; for in it are to be found the fundamental doctrines of the *Wealth of Nations*, especially as to economic motive and natural liberty; and the famous work cannot be properly understood without some knowledge of the *Theory*. But the ethical work has also received the highest praise in its own right from some modern critics of weight;[1] so much so that the problem would seem to be why it has been so underestimated. The aim of this essay is to suggest by outlining its argument that this is undeserved; for the work develops an ethical theory of considerable subtlety and balance. First, however, some brief reasons for the undervaluation.

The book has been found tiresome, some would say superficial, by readers of this and last century, because it is written in a rather pedantic rhetorical style. Its flaws seem obvious. Yet the explanation is so simple that it is astonishing it has been ignored, or just not known. The fact is that here we have the published form of Adam Smith's lectures on ethics to his Moral Philosophy classes in Glasgow University. Now, the typical age in these classes (the first year of eighty to ninety students, the second of about twenty students) would be somewhere between fourteen and sixteen.[2] There is quite definite contemporary evidence for these facts. John Millar took Smith's lectures; and this professor of law, famous in his day, tells us that Smith's course consisted of four parts; first Natural Theology, second Ethics itself—'and consisted chiefly of the doctrines which he afterwards published in the *Moral Sentiments*'[3]—third 'Justice' (or jurisprudence) on which he intended to write a book, but the first draft of which we have in his 'Glasgow Lectures,' and fourth 'Expediency,' the first hints of the later *Wealth of Nations*. Dr. Wod-

[1] Cf. L. Bagolini. *La Simpatia Nella Morale e nel Diritto*: also *British Moralists*, ed. Selby-Bigge. Introduction. I have described the connections between the *Moral Sentiments* and the *Wealth of Nations* in an article in *Oxford Economic Papers*. October 1959.

[2] Cf. J. Rae. *Life of Adam Smith*. pp. 50. 57.

[3] Rae. op. cit., p. 54.

row also wrote of 'the lectures which were the first form of *The Theory of Moral Sentiments.*'[4]

Now it is difficult to understate the influence which facts like these can have on the style of a book (and Smith rarely revised extensively: having finished with one subject his mind pushed on to further problems). A little experience of lecturing to large young classes of beginners on such subjects drives the points home. Certainly, if the book is read with this background constantly in mind, it is quite remarkable how what may have before seemed jejune, indeed at times rather feeble, becomes at once intelligible, and by reflection almost amusing. If one lectures to a crowd, and only the skill and tricks of the experienced lecturer can transmute a crowd of eighty boys in their middle teens into an intelligent body, the first essential is to hold their continued interest. Various aids are available. The first, general in the 18th and 19th centuries, is rhetoric. Secondly, various forms of rather facile humour, especially if they deal with the commoner manners of the day, jokes which the lecturer finds by experience always pay their way, are invaluable. If this is remembered and we read the *Moral Sentiments* as so delivered, it is astonishing how apt the style becomes for its purpose. Room permits only a few quotations from the many epigrams which would amuse and interest these young men. They usually refer to customs and manners in which young men especially are interested.[5] And the style is for intonation, not for reading. One can easily see that these would be successful *lectures*. But, to the reader, the repetition and *longueurs* suitable for a course of perhaps a hundred hours certainly can be tiresome.

This being understood, it is, however, the thesis of this article that the achievement of the *Moral Sentiments* should not be missed. For, behind all this, the work did succeed in working out a highly refined pattern of ethical theory through a rather simple web. The obvious argument, as is proper for Smith's immediate purpose, is simple. It is just the accepted classical ethical background of the

[4] See W. R. Scott, *Adam Smith as Student and Professor*, p. 70.

[5] 'A woman who paints could derive, one should imagine, but little vanity from the compliments that are paid to her complexion.' 'The great secret of education is to direct vanity to proper objects.' Then about Zeno who at ninety-eight 'went home and hanged himself'—'at that great age, one should think he might have had a little more patience.' For Mandeville 'there is vice even in the use of a clean shirt or a convenient habitation.' 'A numerous and artful clergy.' 'The fair sex, who have commonly more tenderness than ours, have seldom so much generosity.' And Part V 'Of the Influence of Custom and Fashion . . . ,' generally.

18th century—Platonic-Aristotelian-Stoic.[6] From Platonism came especially the rationalism, and the aesthetic delight in the perfect system or machine. From the Stoics springs his emphasis on the life according to Nature, on the natural liberty of the individual (the ' self-love ' of the 18th century or the self-interest of the *Wealth of Nations*) and the citizen-of-the-world theme. But when he criticises the Stoics (their ' perfect apathy ') he is following Aristotle in recognising subordinate goods, such as health and wealth, as well as the major good (habitual) virtue. The source of all this is clear. Adam Smith's main references are in fact to Cicero, *De Officiis* and *De Finibus*. No doubt he based these then conventional theories on the Cicero texts because they would be fairly familiar to his young audiences. They would provide a foundation for his course. The point from which Smith advanced to his more individual theory was in fact the Stoic natural liberty, though he at once added to it a fuller statement of man's essentially social nature. This he most clearly stressed in a letter to the *Edinburgh Review* of 1755 in which he criticises Mandeville and Rousseau. It is from this source that Smith develops his own theory of sympathy and of society, through his own interpretation of Hume's view, and through his criticism of Hutcheson's ' benevolence ' as not giving adequate place to the very strong force of ' self-love,' in human affairs. Here we see the outline of Smith's essentially modern theory of society, a construction which shows virtues of system and balance which Hutcheson could not reach, and which Hume the sceptic did not seek. Yet Smith rivalled Hume in realism. This undercurrent constitutes Smith's true contribution to moral and social theory. While we must regret that its clarity is obscured by the formal lecture setting, one cannot but admire the skill with which such an original intricate theory was woven through the formal web, and this in such simple terms that even his teenage acolytes might be interested by it, and imagine they understood it.

II

The simplest start is to consider what Smith thought of Utilitarianism; this especially in view of Hume's position, and because utility is his inevitable starting point[7] in the *Wealth of Nations*. What then

[6] Moral Sentiments, pt. vii, s. ii, ch. i. In the sequel MS. in the footnotes will stand for the *Theory of Moral Sentiments*. The page references are to Alex. Murray's (1872) reprint of the *Essays* of Adam Smith.

[7] Inevitable, because economics is the science of scarce means and their most useful application. As it is a mediate science, this start implies no special philosophical position (though there has been a tendency among economists to assume that Adam Smith had utilitarian philosophic sympathies).

did Smith say in the *Moral Sentiments* as to the value of utility? Did he regard it as adequately representing or measuring pleasure or happiness, or, in some sense, good consequences? And did he regard good consequences as predominantly constituting what was finally good in human experience?

The passage in which Smith deals explicitly with this issue is that in which he criticises Hume's utility theory. That 'ingenious and agreeable philosopher' had held[8] that we approve of an object's utility because of the pleasure we know or imagine it yields. Utility corresponds to pleasant consequences. To this Smith replies categorically 'It is not the view of this utility or hurtfulness which is either the first or principal source of our approbation or disapprobation.'[9] 'For first of all, it seems improbable that the approbation of virtue should be a sentiment of the same kind as that by which we approve a convenient or well-contrived building; or that we should have no other reason for praising a man than that for which we commend a chest of drawers'[9] (a homely but apt discrimination of values). And, secondly, 'the sentiment of approbation always involves in it a sense of propriety quite distinct from the sense of utility.' In these passages, then it is denied that utility is the basis of our 'approbation,' or judgment of the good. And the view is stated that this basis is found in a 'sense of propriety.'[10]

We shall best disclose Smith's positive doctrine of the nature of 'virtue' or of the source of approbation if we follow up this 'sense of propriety,' 'agreeability to truth and reality.' For a sense of propriety is something different from good consequences in some sense pleasant. Here, indeed, Smith is consistent and specific. It is to the 'beauty' of 'fitness' that he constantly returns—the beauty of the 'well-contrived machine.' Such a machine, says Smith, provides 'a thousand agreeable effects,' while a rusty jarring machine 'would displease' and be 'necessarily offensive.'[11] So what is valuable from the point of view of virtue is the fitness of the machine, the 'fine polish' it gives 'to the wheels of society,'[11] not the results for which the machine is the necessary means. In all these emphases on 'fitness,' the stress is on propriety and good reputation, on the emotional and rational ideas of social regard, not on the useful result in pleasant

[8] Hume's Enquiries, Ss. 154 f., 172 f. (*The Principles of Morals*, ed. Selby-Bigge).

[9] MS., pt. IV, ch. ii. p. 166.

[10] For the full argument, see MS., pt. IV, chs. i and ii.

[11] See whole passage at MS., pt. vii, ch. i, p. 280. Smith carries this argument (found also, as to beauty, in Hume) far into his social theory—'human society appears like a great, an immense machine.' We shall comment on this later.

experiences. This is the reverse of the utilitarian approach. But Adam Smith's own criticism of utility ethics is there to confirm it. He was not of course unmindful of results, of the 'agreeable effects' —quite the opposite. But so far as the results have utility, 'as making part of a system of behaviour which tends to promote the happiness either of the individual or of society, they appear to derive a beauty from this utility, not unlike that which we ascribe to any well-managed machine.'[12] 'This account, therefore, of the origin of approbation and disapprobation, so far as it derives from a regard to the order of society, runs into the principle which gives beauty to utility . . . and it is from thence that this system derives all the probability which it possesses.'[13] That is definite enough.

Still more explicit is the summary of the passages dealing with the nature of 'virtue,' or the good. He considers virtue in turn as propriety, self-love or prudence, and benevolence. He concludes 'that system which places virtue in utility coincides too with that which makes it consist in propriety, . . . Every affection is useful when it is confined to a certain degree of moderation. . . . According to this system, therefore, virtue consists not in any one affection, but in the proper degree of all the affections.' But he immediately adds the decisive statement: 'The only difference between it and *that which I have been endeavouring to establish* is that it makes utility and not *sympathy or the correspondent affection of the spectator* the natural and original measure of this proper degree.'[14] Clearly Adam Smith was not endeavouring to establish the system of utility.

[12] MS., pt. vii, S. iii, ch. iii, p. 290.

[13] Loc. cit., ch. i, p. 280. MS., pt. vii, S. iii, ch. i, p. 280. If we may interpret Smith in more modern terms, there is no doubt that for him it is beauty that has final value, utility instrumental value (apart from its own inherent beauty or fitness). 'Agreeable effects' are a felt result of all experiences of any value. Their natures will vary with the specific quality of each value. If one reads the *Moral Sentiments* alone, surprise may be felt that Smith puts such weight on this 'beauty of the well-contrived machine,' yet states it merely dogmatically. He never demonstrates this 'derivation.' The reason seems to be that here he is content to follow his teacher Francis Hutcheson, to whose work the historian must go for demonstration. (For example, see Hutcheson, 'Inquiry into the Original of our Ideas of Beauty and Virtue,' 4th ed. (1738), p. 103; also Sect. VI; and W. R. Scott, *Francis Hutcheson*, p. 191.) It is of course especially true of Hutcheson that he had his hedonistic phase. His utilitarianism appears as a source when he interprets utility as seeking the greatest *happiness* of the greatest number (i.e., of *society*, for him), deriving this from benevolence. Yet taking the whole range of his work, we have to conclude that Hutcheson also placed final value on the qualities of character behind the pleasant experiences. (Cf. *Inquiry*, 1st ed., p. 113, p. 129.) The very pleasures which are necessarily associated with appreciation of beauty or benevolence, are uniquely coloured by them. This is the association doctrine which Smith accepted from Hutcheson and moulded to his purposes.

[14] MS., pt. vii, S. 11, ch. iii, p. 271. This 'proper degree' is in fact the essence of *economy*. Italics mine.

Before leaving utility we should refer to Smith's treatment of the 'pleasures of wealth and greatness.' These are of special interest to the economist, who may expect that their utility might be chosen as the source and aim of economic endeavour. Yet, in the crucial passage in the *Moral Sentiments,* utility is not mentioned as a motive. What we find is this: 'The pleasures of wealth and greatness . . . strike the imagination as something grand and beautiful and noble, of which the attainment is well worth all the toil and anxiety which we are so apt to bestow on them.'[15] This, however, he at once dubs a 'deception,' though it remains the force 'which rouses and keeps in continual motion the industry of mankind.'[16]

Smith also carefully discusses utility in its social reference, as usefulness for the 'great machine,' only to dismiss it as an inadequate bond for society. 'Society,' he says, 'may subsist among different men, as among different merchants, from a sense of its *utility,* without any mutual love or affection.'[17] But it cannot 'subsist among those who are at all times ready to hurt and injure one another.'[17] So prior to utility must come justice. 'Justice . . . is the main pillar that holds the whole edifice.'[17] For benevolence cannot be forced, whereas utility *depends* on justice being enforced. So utility can never dispense with justice, though the opposite can hold. For Smith, the final sanction is 'the justice of God.'[17]

So far then as Smith defined intrinsic value, he placed it especially in virtue and beauty. Utility in itself had only instrumental value, except in so far as it partook of the beautiful in the 'system.' And the exercise of any virtue had 'many agreeable effects.' In this sense, good or pleasing consequences were essentially associated with and coloured by the exercise of the values from which they were derived.

III

Smith then was not a utilitarian, even in Hume's sense. Utility for him was not basic. Hume however regarded utility to society as 'a foundation of the chief part of morals, which has reference to mankind and our fellow creatures.'[18] For Hume then utility to society

[15] MS., pt. iv, ch. i, pp. 162-3.

[16] MS., pt. iv, ch. i, pp. 162-3. For here we confront the 'capacity of the ('proud and unfeeling') landlord's stomach' which 'bears no proportion to the immensity of his desires'. Hence the 'rich consume little more than the poor, and in spite of their natural selfishness and rapacity . . . they divide with the poor the produce of all their improvements; so they are led by an invisible hand . . . without intending it, without knowing it, to advance the interest of society, and afford means to the multiplication of the species'.

[17] MS., S. ii. ch. iii. pp. 79, 84. Italics mine.

[18] Hume, *Enquiry Concerning the Principle of Morals,* Ss. 188/9 (ed. Selby-Bigge).

is at least the measure of moral value. But Hume went on (and here Smith is with him): 'it appears also that in our general approbation of characters and manners, the useful tendency of the social virtues moves us not by any regard to self-interest, but has an influence much more universal and extensive.' This 'influence' for both Hume and Smith is sympathy. Its source Hume was content to examine no further than to say we were made so. 'Sympathy is the chief source of moral distinctions.'[19] 'We find it has force sufficient to give us the strongest sentiments of approbation, when it operates alone without the concurrence of any other principle.'[19] Attacking 'the theory which accounts for every moral sentiment by the principle of self-love,' Hume asserts that 'everything which contributes to the happiness of society recommends itself directly to our approbation and good-will.'[20] And in an interesting footnote he remarks: 'It is needless to push our researches so far as to ask why we have humanity or a fellow-feeling with others. It is sufficient that this is experienced to be a principle in human nature. We must stop somewhere in our examination of causes.'[20] This is consistent with his positivist doctrine that reason is only a tool for the passions (for sympathy is an emotion). But Smith, while he adopted this general account of sympathy as the cement of society and the source of moral rules, had a different measure for judging social benefit ('fitness' or 'propriety' rather than utility); and a different view of the end of human society; both stemming from the different weight he put on the place and function of reason. And whereas, as a definition of good conduct, Hume was content with 'a feeling for the happiness of mankind,' for Smith, 'propriety' led to more rational interpretations. Propriety for what? In the time-honoured way, Smith first gave the conventional Stoic answer—appropriate to our natures. But his really original contribution advances from this basis by adopting Hume's view of sympathy as the moralising factor, but then adding to it his own characteristic rational twist, by interpreting it as always the sympathy of the 'impartial and well-informed spectator.' Within this social setting, both Hume and Smith had to account for the obvious antisocial aberrations of 'self-love'—at its worst selfishness. Smith's treatment is especially ingenious. He argues that, far from being essentially antisocial, self-love is usually the homespun source of social benefit, and, where it is not, still the force it generates is wisely intended by the Deity as necessarily involved in the most potent spur

[19] *Treatise*, Vol. II, p. 310 (Everyman ed.).
[20] *Enquiry*, S. 178.

possible for social (especially economic) progress.[21] This is worked out in his theories as to prudence, vanity and magnanimity. And here we have the source, set in its due ethical place, of the economic analysis worked out so richly in the *Wealth of Nations*. So for each of these great thinkers there is an ultimate. For Hume it is a fact, 'a principle of human nature' ('we must stop somewhere'). For Smith it is theological, the purpose of the 'invisible hand', using even human vanity for its purposes.

As to sympathy then, for both Hume and Smith it is the main source of morals. Thus, while Bentham found it difficult to pass from utility for individual pleasure to social utility, for the Scottish thinkers there is no such problem, as the ultimate unit is society, and moral obligations consist just in the individual's duty to society, where there is conflict with the claims of 'self-love'. It is then with the different slant that Smith gave to Hume's theory of sympathy that we are mainly concerned. This is worked out especially in two respects —first in Smith's constant emphasis on the *situation* in which sympathy occurs, and second in the actual operation of sympathy through the mediation of the 'impartial spectator': both these respects in turn emphasising the more rational as against the more emotive aspects of sympathy. As to the first, it will be found that Smith always thinks of sympathy in terms of the recipient's situation, on from the first page—'by the imagination we place ourselves in his situation'. This central function of the 'imagination' was also stressed by Hume. But the ways in which Smith develops its intellectual elements are significant. 'Sympathy therefore does not arise so much from the view of the passion (of another), as from that of the situation which excites it'.[22] Imagining ourselves in another's situation is a much more intellectual procedure than merely sharing his observed emotion. Indeed, Smith reveals our judgments of such situations as the products of our own rationalised social experience: 'we sometimes feel for another a passion of which he himself seems to be altogether incapable'.[22] It is indeed this element of judgment on the situation which grows into the 'impartial spectator' doctrine through whose activity the system of moral rules constantly develops.

This 'imagination of the situation' reminds us, again, that both Hume and Smith thought of sympathy as operating at two levels. Hume regularly writes of 'immediate' sympathy. We should not

[21] There is of course Stoic theory behind this: cf. MS., pt. i, S. ii, ch. iii, p. 34. '. . . by that eternal art which educes good from ill, (the vices and follies of mankind) were made to tend equally to the prosperity and perfection of the great system of nature'.

[22] All these quotations are from MS., pt. I, S. i, ch. i.

expect from him the modern correlative 'mediate'; and we do not get it. The more developed stage is 'imaginative' sympathy, as contrasted with our immediate shrinking when, for instance, we see another suffer a blow. Similarly, Smith gives examples of sympathetic reactions 'instantaneously and antecedent to any previous knowledge'. Smith, however, develops 'imaginative' sympathy in a much more rationalistic sophisticated way. His constant formula is that we 'put ourselves in their situation', so 'lodging, if I may be allowed to say so, our living souls in their inanimated bodies, and thence conceiving what would be our emotions in this case'. Small wonder that he at once describes this intricate transmigration as 'a very illusion of the imagination', 'what perhaps is impossible'. It is an irrationality, for remaining ourselves we are assumed to be able to assess the very passions of another in an imagined situation. I am concerned here to stress specially the intellectual nature of this process. We could carry it through only by taking step-by-step thought. The fact that it is based on a kind of conscious self-deception, and the way in which Smith places this capacity for self-deception in his whole system will be dealt with shortly.[23]

As against Hume, Smith's second step in emphasising the rationality of the moral process is even more decisive. For as ubiquitous in the argument about sympathy's activity is its expression through the judgments of the 'impartial and well-informed spectator'. Hume, we should remember, often used the term spectator. But as if quietly to emphasise the affective side of the person, he never added any

[23] One distinction made by Smith which his expositors have stressed (e.g. Bagolini, op. cit.) is that between 'direct' and 'indirect' sympathy. (MS., pt. ii, S. 1, ch. v, p. 68, and pt. vii, S. iii, ch. 1, p. 281): 'As our sense therefore of the propriety of conduct arises from what I shall call a direct sympathy with the affections and motives of the person who acts, so our sense of its merit arises from what I shall call an indirect sympathy with the gratitude of the person who is, if I may say so, acted upon'. This, as against Hobbes, he is concerned to show cannot arise from self-love, for I imagine myself to be the person—'I change persons and characters. My grief therefore is entirely on your account'. In indirect sympathy then we have the *conscious* activity of the social factor. Hume does not use the terms 'direct' and 'indirect sympathy'. So far as I know they are original to Smith. I think they follow from his more rationalistic treatment of sympathy—here as necessary to 'approval', and the assessment of 'merit' (or social valuation). But 'direct' and 'indirect' sympathy is a different distinction from that between immediate and 'imaginative' sympathy—though it appears to be a narrower one, as both direct and indirect sympathy can be imaginative. Yet certainly, as well as imagination, an intricate process of thought is involved in 'changing circumstances with you', and also 'changing persons and characters'. The basic fact is that sympathy 'immediate' or 'imaginative', 'direct' or 'indirect' represents just the social side of our natures in action. For both Hume and Smith, in their different ways, this side predominates, either in fact or in the intention of the Deity. Smith in fact mentions the 'direct', 'indirect' distinction only twice. For him, as for Hume, the immediate, imaginative distinction is the fundamental one.

rationalistic adjectives. (We do find him speaking of 'impartial conduct'; and he once gets the length, by exception, of 'the judicious spectator'.)[24] It is proper therefore to stress the rationalistic turn that Smith gave to the procedure. Thus, our power to put ourselves in another's situation, and then assess it, can act in reverse. The person concerned can be his own spectator. 'As they (the spectators) are constantly considering what they themselves would feel, if they actually were the sufferers, so he is as constantly led to imagine in what manner he would be affected if he was only one of the spectators of his own situation'. 'Society and conversation, therefore, are the most powerful remedies for restoring the mind to its tranquillity'.[25] The force of reason must be strong if it can so cause the sufferer to 'conceive some coolness' as to his own situation, and so restore control. Smith certainly keeps the balance. 'Tranquillity' is an affective state. Again, the subjective side of the process is as constantly underlined as the other. The impartial spectator is as steadily identified with conscience, 'the man in the breast', as with reason. 'Though man has in this manner been rendered the immediate judge of mankind, he has been rendered so only in the first instance, and an appeal lies to a much higher tribunal, to the tribunal of their own consciences, to that of the supposed impartial and well-informed spectator, to that of the man within the breast, the great judge and arbiter of their conduct.'[26] Then 'he almost identifies himself with, he almost becomes himself that impartial spectator'.[26]

Now obviously this is rather an *omnium gatherum* if taken in abstraction. We should here recall that these are general lectures to very young students. The terms are kept simple and homely. Further, in reading the ethics of both Hume and Smith, one feels that they both regard the inconsistencies between feeling and reason as embedded in the facts, and that therefore, if they carry these inconsistencies along in their thinking under such omnibus phrases they are merely reflecting the situation. Neither, in his ethics, placed such predominant weight on analytical logical consistency as we do to-day. The act is

[24] Indeed, one could collect many passages from Hume which express the spirit of Smith's 'impartial spectator'. Yet, while the two friends' general attitude to affairs was similar, it remains true that in analysis Hume stresses rather the 'feeling' or 'passion', Smith the rational element.

[25] These quotations are from MS., pt. i, S. i, ch. iv, p. 22. 'Tranquillity' or 'absence of fear and longing' express for us the Stoic 'apathy' more exactly than does Smith's direct translation.

[26] MS., pt. iii, ch. iii, p. 120, p. 128. Smith here develops the interesting comment that through these social contacts a kind of mean between agent or sufferer and spectator is established. The 'much weaker passion' of the spectators 'necessarily abates the violence of what he felt before he came into their presence', through its 'candid and impartial light'. Loc. cit. in (25) above.

regarded as compounded of feeling and thought; and while each, if taken in abstraction, could be treated more consistently, each, so abstracted 'loses the name of action'. At the worst, when the judgment of the 'man without' is in conflict with that of the 'man within' in the struggle for the impartial spectator's support, Smith is quite prepared to refer the conflict to a still higher tribunal, to that of the 'all-seeing Judge of the world, whose eye can never be deceived, and whose judgment can never be perverted.'[27]

This, however, is theology (remote from Hume). Smith's positive theory as to the irrationalities of conduct, the 'deceptions' involved in sympathetic action (where *per impossibile* we at once remain ourselves and put ourselves in others' places) and the economic strivings for 'vain' greatness and riches—his theory as to these is quite concrete and inductively specific. It consists in the process by which the constant action of the impartial spectator principle gradually builds up a system of moral rules and customs which are in fact at once the cement and the basis of progress for societies. Smith is very careful in describing this vital process.[28] Recalling the inductive nature of the *Wealth of Nations*, this stress on induction in the *Moral Sentiments* is interesting.

These self 'deceptions' of ours remind us that Hume and Smith had not nearly such a lofty view of the powers and value of human experience (alone) as had thinkers of the next century. Smith constantly stresses that we could not trust to the mere altruism of our 'coarse clay'. Altruism has in fact nothing like the necessary power to make the machine work. The two 'deceptions' are therefore necessary. Just because we are by nature social, our very active self-love must be

[27] M.S., pt. iii, ch. ii, pp. 115, 6.

[28] M.S., pt. vii. S. iii, ch. ii, p. 283. 'The general maxims of morality are formed, like all other maxims, from experience and induction. We observe in a great variety of particular cases what pleases or displeases our moral faculties, what these approve or disapprove of, and by induction from this experience, we establish those general rules. But induction is always regarded as one of the operations of reason.' (Cf. ibid., pt. iii, ch. iv, p. 139.) It is true that later in the same passage he tells us 'it is altogether absurd and unintelligible to suppose that the first perceptions of right and wrong can be derived from reason. . . . These first perceptions, as well as all other experiments upon which general rules are founded, cannot be the object of reason but of immediate sense and feeling. . . . Reason cannot render any particular object either agreeable or disagreeable to the mind for its own sake.' Only 'immediate sense and feeling' can do this. Again, says Smith (MS., pt. iii, S. ii, ch. ii), 'If virtue . . . be desirable for its own sake, and if vice be, in the same manner, the object of aversion, it cannot be reason which originally distinguishes those different qualities, but immediate sense and feeling.' One obvious criticism is that 'vice' is not 'the object of aversion.' But Smith here follows Hume. Both were prepared to carry the contradictions in human conduct involved, for both were mainly interested in the growth of social progress through the gradual development of taste, and even 'place,' under the guidance of rational utility or propriety.

induced by this illusion into acting for the social benefit—by our constant tendency to place ourselves by imagination in the sufferer's situation. The 'deception' finds its more famous place in the *Wealth of Nations*. There it becomes the source of our economic motives, our earnest strivings for 'place', and those 'trinkets'—wealth and greatness. This is of course *Moral Sentiments* theory, though it later served as the psychological and theological basis for giving as free scope as possible to the individual in the economic life of the *Wealth of Nations*. The vital passages occur in the *Moral Sentiments* under the over-ruling concept of the 'invisible hand' (*not* first in the *Wealth of Nations*, as is apt to be assumed). It was not to serve the selfish benefit of the individual that he should be given his head. It was because, in view of his 'coarse clay', only by his being deceived to believe in 'place' and 'riches' could the individual effort necessary for the progress of society and moral standards be sustained. Evolutionary theories of the 19th century no doubt changed all this, so far as the *method* of progress was understood. But the belief, so popularly accepted in the economic world, that Smith was primarily an individualist, is the very reverse of the truth. For him as for Hume, the interests of society were the end. By all means let the individual be encouraged to chase 'trinkets', so long as this conduced to that end. Smith's 'invisible hand' had a good smack of cynicism in its composition.

Yet he was thorough in his logic. He saw that the interests of the individual must be given due and intelligible outlets. And he did work out a theory of graduated individual values by which it was at once possible to see how the true interest of the individual could coincide with that of his society, and also to deal with that final human enigma, selfish evil conduct by individuals. This is contained in his psychological account of the progress from vanity to magnanimity. He always describes the general human motive in its lowest form as vanity. A few quotations must suffice. 'From whence then arises that emulation which runs through all the different ranks of men, and what are the advantages which we propose by the great purpose of human life which we call bettering our condition?[29] To be observed, to be attended to, to be taken notice of with sympathy, complacency and approbation, are all the advantages which we can propose to derive from it. It is the vanity, not the ease or the pleasure,

[29] This is the key phrase which we later find in the *Wealth of Nations* as the motive of the 'economic man' (in J. S. Mill's phrase). It is Smith's way of putting more positively the more negative but universal urge to self-preservation.

which interests us'.[30] But Smith builds a steadily rising ladder for men from vanity to pride and from pride to magnanimity. Pride and vanity are 'two words, of which the latter always, and the former for the most part, involve in their meaning a considerable degree of blame'.[31] Yet 'there is an affinity between vanity and the love of true glory, as both these passions aim at acquiring esteem and approbation'. 'Even the love of well-grounded fame and reputation, the desire of acquiring esteem by whatever is really estimable, does not deserve that name (vanity). The first is the love of virtue, the noblest and best passion of human nature. The second is the love of true glory, a passion inferior no doubt to the former, but which in dignity appears to come immediately after it'. 'The man of the greatest magnanimity, who desires virtue for its own sake, and is most indifferent about what actually are the opinions of mankind with regard to him, is still, however, delighted with the thought of what they should be, with the consciousness that though he may neither be honoured nor applauded, he is still the proper object of honour and applause'.[32]

If even this estimate of the desire for true esteem may still seem somewhat cautious and 'cool', it is fair to add one further note on which Smith constantly plays, which certainly warms it. 'Humanity does not desire to be great, but to be beloved'.[33] 'What so great happiness as to be beloved, and to know that we deserve to be beloved? What so great misery as to be hated, and to know that we deserve to be hated'?[33] This note appears so regularly that there can be no doubt it represented for Smith the highest state to which we can aspire. And it would be difficult to represent human desires as seeking a form of satisfaction more social.

If then we ask what meanings Smith attached to human virtue, we might well expect them to reflect these personal 'passions'. The 'self-love' urge to 'better our condition' rises to prudence: the rational aspect is reflected in the favourable judgment on prudence of the impartial spectator, in his 'approbation'. And the social feeling reflects individual benevolence. Here again one is apt to criticise an unreconciled collection of definitions. But if in fact Smith did succeed (he certainly tried) in showing how self-love could become prudence, and could grow to be socially valuable prudence only in a free society made up of critical yet social individuals, then his eclectic account of the virtues has some justification. That he was conscious of the need

[30] MS., pt. i, S iii, ch. ii, p. 48.
[31] MS., pt. vi, S. iii, p. 226.
[32] These quotations are from MS., pt. vii, S. ii, ch. iv, pp. 273-5.
[33] MS., pt. iii, ch. v, p. 146, ch. i, p. 102. Cf. also pp. 40, 89, 200; 263.

for such a wide account is shown by his criticism of Mandeville and Hutcheson; the one for a merely selfish definition of self-love, the other for not finding an intelligible function for self-love in his benevolent system.[34]

Inevitably, also, these eclectic views of human motive and virtue are reflected in Smith's conception of the end or purpose of human existence. Here indeed we find a classical mixture. Platonic 'perfection' is combined with Aristotelian 'happiness' and both are interpreted on the social side in terms of the Stoic 'citizen of the world'. As the sources Smith most constantly quotes are the Cicero texts, the lack of discussion of the inevitable clashes between 'happiness' and 'perfection',[35] or among groups and nations, may be understood, though its inadequacy is obvious. Here also, however, Smith did introduce two more modern positive elements of his own. The first stems from the scientific developments of the 16th and 17th centuries. 'Human society, when we contemplate it in a certain abstract and philosophical light, appears like a great, an immense machine, whose regular and harmonious movements produce a thousand agreeable effects'. The value here, in the final trinity of values, is stated by Smith to be 'beauty'. He often recurs to this theme. But as the source and support of this machine is always described as 'the great Director (or 'Conductor') of the universe', while we may share in his 'love of system', and recognise the scientific realism of his descriptions, the root source here is theological rather than ethical. The other modern insight is of course Smith's inductive method. It is by our gradual evolution of moral rules and customs from innumerable cases that we develop those human institutions which are at once the safeguards and the growing points of human societies. In them the clashes of 'self-love' and benevolence, of sentiment and reason, are so far reconciled—reconciled in no absolute way, but pragmatically *ambulando*. Smith, like Hume, had no philosophical belief in absolutes, only a 'cool' hope in very gradual, if stumbling improvement.[36] With Hume, he constantly mentions the 'welfare of society' as the dominant human end. But, in the *Wealth of Nations* Smith for once went beyond his illustrious friend. For there he demonstrated the inductive method in practice by actually working

[34] MS., pt. vii. S. ii. ch. iv. p. 276 and ch. iii. p. 269, respectively.

[35] 'Nature . . . seems . . . to have intended the happiness and perfection of the species.' MS., pt. ii. S. iii. ch. iii. p. 96.

[36] He saw the human role much more modestly than we do to-day. 'To man is allotted a much humbler department (than to God); but one much more suitable to the weakness of his powers, and the narrowness of his comprehension: the care of his own happiness, of that of his family, his friends, his country.' MS., pt. vi. S. ii. ch. iii. p. 210.

out a system of economic institutions, by analysis and also by description. Here he makes a fair claim to have introduced a new, specifically modern method of investigation in sociological theory.

IV

If this interpretation is accepted, the conclusions follow easily. Within the frame of the Stoic - 18th century doctrine, Smith did succeed in working out a theory of morals, and especially of society, which is at once original, subtle and impressive: one which, through its specialised development in the *Wealth of Nations*, has deeply influenced the world's social theory. His main feat was his interpretation of 18th century individualistic theory in terms of the actual working of reason as it in turn evolves and builds on 'general rules of conduct', and social institutions. These stem from the vigour of 'self-love' and conscience, themselves held in a living unity of social feeling by sympathy; the rules themselves reflecting the constant criticism of the 'impartial spectator' and the constant pressure of 'propriety'. The result can certainly be claimed as one of the most satisfying social theories of the 18th century.[37] It is this exposition of the workings of reason that may justify the view, expressed especially by German writers, that Smith, as well as Hume, directly influenced Kant. What greater privilege!

The weaknesses of the *Moral Sentiments* are certainly obvious. They are those of the system builder. (The *Wealth of Nations* is still at the basis of our systematic economic theory.) The argument is too diffuse, too vague, too encumbered with loose ends. Much of this might be excused by the lecture form. Yet one must recognise the convenient, but often agonising spread of meaning, at times almost amounting to self-contradiction, in some of the strategic ideas, such as Nature, liberty, and a benevolent deity.[38]

[37] This indeed is the conclusion of a scholar whose knowledge of the texts is eminent—Selby-Bigge (in his Introduction to *British Moralists*, p. lv): 'The idea of the individual conscience as one emerging from the social conscience, the idea of the society as a whole from which the individual disentangles himself, and in which alone he can find himself, which is the central idea of Adam Smith's system, was a notable return to a more concrete method of thought.' Again 'Adam Smith's theory is rather circular but the essence of his system is that it is a closed circle of reciprocal 'sympathy' and as such it deserves more attention than it has recently received from the sociologist, the psychologist, and the moralist.'

[38] James Bonar made wise comment here in his *Philosophy and Political Economy* at p. 177 *et seq.*

Admitting all this, these remain remarkable lectures. On any standard, they deserve careful study, especially by social philosophers. Their original argument earns the judgment of Selby-Bigge: 'a view of the organic unity of social feeling based on common circumstances and conditions of life and well-being, which is a great advance on anything which had fallen from his benevolent or utilitarian predecessors'.

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THE QUANTITY OF MONEY, GROSS NATIONAL PRODUCT, AND THE PRICE LEVEL: SOME INTERNATIONAL COMPARISONS

THE Radcliffe Committee's contention that 'the whole liquidity position'[1] and not just 'the quantity of money' as conventionally defined is what matters for monetary policy has been the most vigorously criticised of all the contentions in their report. Their downgrading of the importance of the quantity of money was the more controversial in that it followed a period in which emphasis on control of the quantity of money had become very marked in the United Kingdom. Nowhere did this emphasis appear more strongly than in the speeches of the then Chancellor of the Exchequer, Mr. Thorneycroft.[2] The Radcliffe Committee's view has been vigorously disputed both by academic economists and by others who look on the quantity of money as an economic variable which it is very important (and in some views all-important) to control. This paper will examine the way in which the quantity of money is believed to influence the volume of monetary expenditure, and in the light of this evidence consider the view that control of the quantity of money is the most suitable formulation of the task of monetary policy. It will also survey changes in the quantity of money and changes in gross national product at current market prices and the price level in twelve countries of Western Europe and North America. If the quantity of money *is* the critical factor in the determination of the general price level, there should be a fairly close association between changes in the quantity of money and changes in the price level and changes in G.N.P. at market prices.

THE VELOCITY OF CIRCULATION

Monetary policy operates on the level of aggregate demand through influencing the volume of monetary expenditure. For control of the quantity of money to be a useful technique of economic policy, therefore, and still more to be the all-important control that Mr. Thorney-

[1] Committee on the Working of the Monetary System, *Report* (Cmnd. 827), para. 389.

[2] For example: 'we are not prepared to finance inflation. We do not intend to supply the cash for an upward spiral of costs and prices. We have planned to put a limit on the supply of money. Our policy goes to the root of the problem. It tackles the main source of inflation, which is the supply of money.' Speech on 10th October, 1957; cited in *H. C. Deb.* Vol. 614, col. 598.

croft held it to be, the link between the quantity of money and the volume of monetary expenditure must be reasonably stable or predictable. This link is usually expressed in terms of the 'income velocity of circulation' or the ratio between the quantity of money (as conventionally defined) and the national income or (sometimes) gross national product at market prices. Total income and final expenditure are measureable whereas PT (in the identity $MV \equiv PT$) is not. The ratio designated as V is calculated *ex post,* and is not the less useful on that account; all economic analysis working with numerical data must necessarily be *ex post.* On the meaning and content of this ratio, which is another way of saying the connection between the quantity of money and the flow of expenditure for goods and services, most of the recent controversy has turned.

The Radcliffe Committee's much-criticised rejection of the quantity of money as the focus of monetary management arose from 'the haziness of the connection between the supply of money and total demand,'[3] specifically the very wide variations in the velocity of circulation in recent years. The Committee held that V is a purely *ex post* statistical concept 'that tells us nothing directly of the motivation that influences the level of total demand,'[4] that is to say, that changes in the ratio of total expenditure to the quantity of money have no causal significance. Demonstration that V has risen may mean nothing more than that monetary expenditure has gone on rising while the quantity of money has risen less or not at all. No enlightenment has been gained about why monetary expenditure has gone on rising, or about the extent to which the rise in monetary expenditure was greater than the rise in real output, and why.

The Committee's view that the concept of velocity gives no insight into the decisions to spend which account for the increase in monetary expenditure was soon challenged. Sir Dennis Robertson wrote:

> 'the Committee omit to mention that the velocity, the ratio $\frac{D}{M}$ (i.e. monetary demand divided by the quantity of money, or the income velocity) is simply the inverse of the ratio $\frac{M}{D}$, the desired ratio of money stock to income, a concept in terms of which most English monetary theory from Marshall to early Keynes and beyond has been phrased'.[5]

If changes in the income velocity of circulation really do in any meaningful sense reflect changes in the desired ratio of money balances

[3] Committee on the Working of the Monetary System, *Report,* para. 523.
[4] Op. cit., para. 391.
[5] 'A Squeak From Aunt Sally,' *The Banker,* December 1959, at pp. 719-20.

to income, it is necessary to account for the very substantial changes in the ratio that took place in many countries in the 1940's and 1950's. It must first be decided which sectors of the economy are likely to adjust their expenditure according to their desired ratio of cash balances to income. Clearly, the notion is of no validity at all with respect to governments, either central or local; they may indeed adjust their expenditure in line with the revenue obtained from the level of taxation that is politically acceptable; but to describe this behaviour as maintaining a desired ratio between money balances and income is a strange use of language indeed. The argument turns on the behaviour of persons, firms, and non-profit-making bodies; whether or not they do have 'equilibrium' or 'normal' ratios of money balances to income, and, still more important, whether changes in their decisions to spend are motivated by changes in those ratios. In the case of firms, it is reasonable to postulate a notion of a 'safe' working balance, the depletion of which causes embarrassment if long continued. Similarly non-profit-making bodies and persons are likely to have ideas about the normal amounts of money they like to hold, the amount being conditioned mainly by the timing of their receipts and payments and the likelihood of fluctuations in them. The Radcliffe Committee held that 'The spending is not limited by the amount of money in existence; but it is related to the amount of money people think they can get hold of, whether by receipts of income (for instance from sales), by disposal of capital assets or by borrowing'.[6] In this view the cash balance currently held is only one influence.

The above view has been challenged on the ground that, while money people think they can get hold of may suffice in taking decisions to spend, for the act of spending ready money is required,[7] a limit to the quantity of money can thus prevent actual expenditure even if it cannot prevent decisions to spend being made. The likelihood of decisions to spend being thwarted in this way is very remote in the case of most firms. It is not a matter of money balances being run down to zero, but of a willingness to run them down somewhat for the time being in order to finance real investment or an increase in trade credit granted in relation to credit taken; whether a firm will do this depends on its view about access to money in the future, above all receipts from sales. If all firms act in this way, all are put in possession of money,[8] and the amount of expenditure and hence the demand for goods and services rises, although the quantity of money

[6] *Report*, para. 390.
[7] E.g., by Sir O. Hobson, *The Banker*, September 1959.
[8] Though the circle is not completely closed, since extra wages, salaries, and dividends must be paid in money.

has remained unchanged. The decision firms have taken, as seen by them, is to go ahead with investment or to agree to their customers' requests for credit, with the change in the ratio of money balances to income as a side effect and certainly not the main decision as viewed by those who took it.

In the personal sector a decision to change the ratio of money balances to income could lead to any of three effects: a change in the proportion of income saved; a change in the composition of a person's assets, as between money and other financial assets; and a change in the amount of investment goods bought, the income that is not devoted to current consumption being used to accumulate more tangible assets and less money or *vice versa*. Either the ratio of saving to income will change, or the proportion of non-monetary financial assets as a proportion of all financial assets will change, or total real expenditure (current plus capital) will rise relative to income.

TABLE I

RATES OF CHANGE OF INCOME VELOCITY, 1948-57

(Per cent. per year)

	1948-50	1950-53	1953-57
Belgium	+2·4	+1·4	+3·8
Canada	+3·5	+9·9	+1·7
Denmark	+15·8	+2·5	+4·4
France	−0·7	+0·6	−2·4
Germany	n.a.	+1·7	−0·7
Italy	−3·7	−3·0	−0·9
Netherlands	+13·6	+1·9	+7·5
Norway	+10·8	+2·1	+5·7
Sweden	+0·9	+1·7	+4·5
Switzerland	−3·7	+2·3	+2·9
United Kingdom	+4·0	+6·7	+5·6
United States	+2·3	+5·0	+3·4

Source: Calculated from Table VII infra.

As will be seen from Table I above, the ratio of money balances[9] to income fell substantially between 1948 and 1957 in eight out of the twelve countries for which figures are given. One possible

[9] The definition of 'money' used in *International Financial Statistics* includes notes and coins, and current account deposits, but does *not* include time deposits (deposit accounts).

' quantity theory ' explanation of this is that money balances having been swollen by war-time finance and money expenditures and hence incomes having been held down by direct controls and by shortages, the ratio of money balances to income at the start of the period far exceeded the desired ratio. As spenders sought to adjust their money holdings accordingly, they were setting up pressures that would work to increase money income until the point was reached at which the actual ratio coincided with the desired one. Apart from the objection raised above, that decisions to spend are rarely seen by those who take them as decisions about the ratio of money balances to income, the explanation solely in terms of adjustment to an equilibrium ratio leaves the variations in the rate of change, which were very marked, quite unexplained.

The very rapid increase in velocity in several countries in 1948-50 can perhaps be attributed to an adjustment towards a more ' normal ' ratio between money balances and income (or in other words, spending units using the large money balances to make their demands effective). But it is doubtful whether the rise in velocity in 1953-57 can be explained in terms of continuation of this adjustment towards the desired ' normal ' money balances/income ratio. The rise in the rate of increase in velocity in 1953-57 compared with 1950-53 in all five of the European countries in which velocity rose is not consistent with the view that the increase was part of an adjustment back to an equilibrium that had been disturbed by war-time credit creation; if this was the process at work, the rate of change of velocity would decline, not increase as equilibrium was approached. Furthermore, there is evidence that by 1953 much of the effect of war-time creation of money had worn off in many countries. Belgium in October 1944 and the Netherlands in September 1945 had carried through monetary reforms which eliminated much of the ' excess ' money that had been brought into being during the war. Of the other countries in which velocity rose in 1953-57, in Denmark, Canada, and the United States velocity in 1953 was higher than it had been in 1938;[10] in Britain, Norway, and Switzerland velocity did not exceed its estimated 1938 value till 1956; and a comparable estimate for Sweden is not available. In Switzerland income velocity *fell* in 1948-50, and in Norway and Sweden its rise in 1953-57 was much more rapid than in 1950-53, so that it is unlikely that the rise in velocity in any of these three countries can be explained in terms of return to a pre-war ' normal.' If the changes in the income velocity of circulation outlined above are to be explained in terms of a desired ratio of money

[10] See Table II.

stock to income, it must be in terms of a change in the desired 'normal' ratio, not an adjustment back to this ratio.

The evidence for the occurrence of such a change in the desired ratio of money balances to income is also scant. As suggested above, one possible effect of such a change would be a substitution of non-monetary financial assets for money, the ratio of money stock to income falling, but the ratio of money plus other financial assets to

TABLE II

INCOME VELOCITY OF CIRCULATION 1938-57

	1938	1948	1950	1953	1957
Belgium	1·89	2·20	2·30/2·34	2·44	2·83
Canada	4·86	3·85	4·14	5·52	5·90
Denmark	2·90	2·44	3·27	3·52	4·17
France	2·29	3·10	3·06/3·14	3·19	2·88
Germany	n.a.	n.a.	5·72	6·01	5·85
Italy	4·13	3·71	3·43	3·11	3·00
Netherlands	2·35	2·15	2·77	2·93	3·92
Norway	3·58	2·52	3·09	3·29	4·11
Sweden	n.a.	4·10	4·18	4·39	5·23
Switzerland	1·97	1·87	1·73	1·85	2·07
United Kingdom	3·51	2·33	2·52	3·06	3·84
United States	2·71	2·33	2·44	2·82	3·22

Notes: Two values are given for Belgium 1950 because of discontinuity in the quantity of money series. Two values are given for France 1950 because the estimate of G.N.P. in 1950 contained in *Statistics of National Product and Expenditure No. 2* (O.E.E.C. 1957) differs from the estimate contained in *General Statistics*, January, 1960.

Sources: *International Financial Statistics*, February 1958 and February 1960; O.E.E.C. *General Statistics*, January 1960; and O.E.E.C. *Statistics of National Product and Expenditure No. 2* (Paris, 1957).

income remaining the same. The International Monetary Fund's statistical category 'quasi money' includes many of the important 'near-money' assets, and therefore the sum of 'money' plus 'quasi money' can be used as a measure of total monetary and near-money assets. From this it can be seen whether or not the apparent fall in the ratio of money balances to income is the result of a substitution of near-money for money by wealth holders. But the rise in velocity in 1953-57 cannot be explained in this way; in those countries where the ratio of money stock to G.N.P. at current market prices fell between 1953 and 1957, the ratio of money plus 'quasi money' to G.N.P. at market prices also fell:

TABLE III

MONEY PLUS 'QUASI MONEY' AS PERCENTAGES OF G.N.P. AT MARKET PRICES

	1953	1957
Belgium	46·7	41·0
Canada	40·6	36·0
Denmark	52·7	48·0
Netherlands	39·4	31·4
Norway	66·2	59·0
Sweden	78·1	72·9
Switzerland	120·6	117·1
United States	54·1	50·9

Sources: O.E.E.C., *Statistics of Sources and Uses of Finance*, 1960, Table II; I.M.F., *International Financial Statistics*, March 1960; and O.E.E.C., *General Statistics*, January 1960 (for Norway 1957 and Sweden 1953).

The International Monetary Fund does not apply the category of 'quasi-money' to British financial statistics, so that no comparable ratios for Britain are available.

Another way in which a reduction in the desired ratio of money balances to income might manifest itself is in a reduction of the ratio of saving to disposable income. Estimates of disposable income and gross personal saving are available for only six of the nine countries in which the velocity of circulation rose between 1953 and 1957. The savings ratios are shown below:

TABLE IV

PERSONAL SAVING AS A PERCENTAGE OF DISPOSABLE INCOME

	1953	1957
Belgium	8·9	9·9
Canada	8·6	8·0
Netherlands	4·6	11·4
Sweden	7·0	8·6
United Kingdom	3·9	7·2
United States	8·1	7·1

Source: Calculated from data in United Nations *Year Book of National Accounts Statistics*, 1958.

In four of the six countries the savings ratio rose, in two of them (the United Kingdom and the Netherlands) very markedly; in the other two the ratio fell. From Table I it will be seen that of the six countries the rise in income velocity was slowest in the two countries (Canada and the United States) in which the saving ratio *fell*, the exact opposite of what would be expected if the rise in velocity resulted from decisions by households to reduce their holding of money in relation to their incomes. Estimates of personal saving as shown in national income accounts are subject to wide margins of error, but the evidence from savings ratios, such as it is, does not support the view that the rise in velocity was caused to an important extent by decisions of persons to spend more in relation to their incomes.

It would also be desirable to have estimates of total personal real expenditure, including acquisition of non-financial capital assets as well as current expenditure, but except for Britain and the United States this information is not available. If 'net increase in identified non-financial assets' (United Kingdom) and 'gross investment in tangible assets' (United States) are added to personal consumption expenditure, and disposable income in the United States increased by the addition of depreciation on tangible assets held by the personal sector (excluded from the Department of Commerce's definition of personal income), the ratio of real expenditure to disposable personal income still rises between 1953 and 1957 in the United Kingdom and falls in the United States.[11]

Such evidence as is provided by changes in the ratios of expenditure on goods and services to personal disposable income, ratios of money plus 'quasi money' to G.N.P., and rates of change of velocity do not support the view that the rise in the income velocity of money between 1953 and 1957 can be interpreted in terms of a change in the 'desired ratio of money stock to income' if that concept is regarded as having a motivational content. There thus appears to be strong grounds for the Radcliffe Committee's view that the velocity of circulation is a concept 'that tells us nothing directly of the motivation that influences the level of total demand.'

The Quantity of Money and the Volume of Monetary Expenditure

The above discussion of the velocity of circulation, and in particular of the causal significance of changes in the velocity, indicates that the connection between changes in the quantity of money and changes

[11] *National Income and Expenditure*, 1959. Table 24, and *U.S. Income and Output*, 1959, Table V-9.

in the volume of monetary expenditure is a loose one. That the volume of monetary expenditure is not just a function of the quantity of money is agreed by all. It is well known that in the 1930's the increases in the quantity of money brought about by easy money policies did not produce a commensurate increase in expenditure. Likewise, when expenditures are restricted by direct controls, aggregate expenditure is

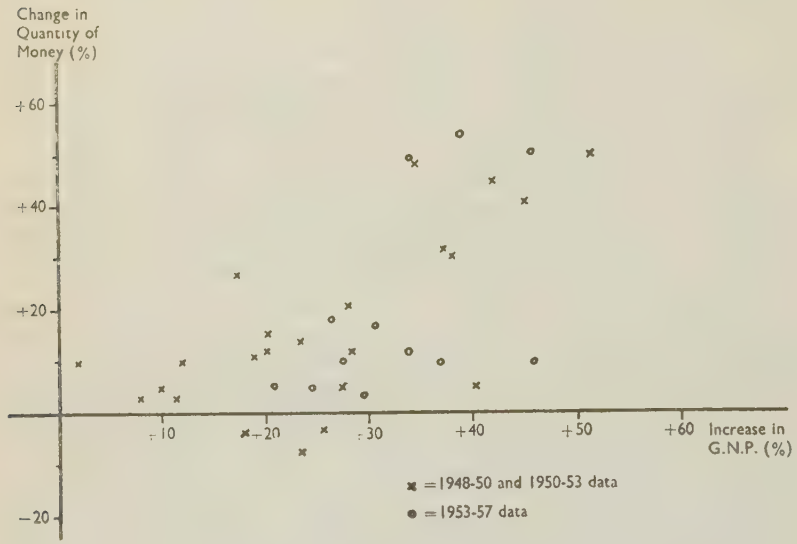

FIG. 1

likely to increase more slowly than the quantity of money. But neither of the above cases applied in the 1950's, which were a period of inflation on the whole, especially the years being considered here, 1953 to 1957. Even if a superfluity of money could not remove a deficiency of demand, an emergent scarcity of money, it was believed, could check inflation. The familiar metaphor of the string that can be pulled but not pushed comes to mind here. But the experience of the boom of the 1950's suggests that the 'string' has an appreciable element of elastic in its composition.

The changes in the quantity of money and the changes in G.N.P. at current market prices over the three periods 1948-50, 1950-53, and 1953-57 for the twelve countries (for Germany only for 1950-53 and 1953-57, because data for 1948 are not available) are plotted on the graph that forms Fig. 1. As can be seen from the graph, there is some

association between the increase in the quantity of money and the increase in G.N.P. at market prices, but the association is loose, as would be expected from the data on velocity given in Table I. The simple correlation coefficient is +0·64, a value large enough to be significant. But the regression equation of the increase in G.N.P. at the current market prices (x) on the increase in the quantity of money (y) is $x = 20{\cdot}5 + 0{\cdot}44y$. There is nothing in monetary theory to lead one to expect a constant term in the relationship between the increase in the quantity of money and the increase in G.N.P.

TABLE V

ALTERNATIVE ESTIMATES OF INCREASE IN THE QUANTITY OF MONEY 1953-57

	Estimate A %	Estimate B %
Belgium	9·8	11·9
Canada	18·5	14·8
Denmark	5·0	5·4
France	53·5	55·3
Germany	49·8	48·7
Italy	49·3	42·0
Netherlands	9·1	14·0
Norway	9·6	12·1
Sweden	12·3	13·6
Switzerland	16·8	17·7
United Kingdom	3·3	5·5
United States	5·8	6·9

Estimate A takes the quantity of money for 1953 and 1957 as being the totals at the end of the respective years. Estimate B takes as the quantity of money for 1953 the arithmetic mean of the totals for the end of 1952 and of 1953, and for 1957 the arithmetic mean of the totals for the end of 1956 and of 1957.

Data taken from *International Financial Statistics*, February 1960.

When data for 1953-57 are considered separately, the same relationship is found. Two estimates of the increase in the quantity of money were made for the period: the first is the increase from the end of 1953 to the end of 1957 as recorded in *International Financial Statistics*, a method of estimate similar to that used for 1948-50 and 1950-53; the second takes the arithmetic mean of the totals shown for the end of 1952 and 1953, and the end of 1956 and the end of 1957. The two sets of estimates are shown in Table V. Using the data esti-

mates by the first method the simple correlation coefficient is +0·55, and using the other data it is +0·59. The regression equation of the increase in G.N.P. at current market prices (x) on the increase in the quantity of money[12] (y) is $x=28{\cdot}1+0{\cdot}25y$. This differs widely from what would have been expected if there were anything resembling proportionality in the relationship between the increase in the quantity of money and the increase in G.N.P. at current market prices. One possible interpretation of this result is that in a four year period, such as 1953-57, there can be an increase in G.N.P. at current market prices of the order of 25-30 per cent. before the quantity of money exerts its restraint. But nothing in existing monetary theory points to such a conclusion.

The Quantity of Money and the Price Level

The relationship between the quantity of money and G.N.P. at current prices is not the whole of the problem, for it is the price level that regulation of the quantity of money is intended to control. The suggestion has been made that the appropriate aim of monetary control is to limit the rate of growth of the quantity of money to the rate of growth of real G.N.P., taking one year with another. If the increase in the quantity of money were so limited, no increase in the price level could occur unless the velocity of circulation increased. This part of the paper examines the connection between the 'excess' increase in the quantity of money (percentage increase in the quantity of money *minus* percentage increase in G.N.P. at constant prices) and the change in the price levels (as measured by the index of the price of G.N.P. as a whole derived from the estimates of G.N.P. at constant prices).

The data for 1948-50, 1950-53, and 1953-57 are shown in Fig. 2. The association is even looser than that between the change in the quantity of money and the change in G.N.P. at current prices. Because of the effects of war-induced excess liquidity on expenditures and prices in the immediate post-war years, a survey of experience in 1953-57, when the effects of the excess liquidity resulting from the war were least, is the most useful. It will be seen that in eight of the twelve countries considered the 'excess' increase in the quantity of money was negative. The extreme case was that of the Netherlands, where real G.N.P. rose by 23 per cent. and the quantity of money rose by only 14 per cent. (as estimated by the second method) or 9 per cent. (as estimated by the first method). The 'excess' increase in the quan-

[12] Estimated by the second method described above.

tity of money was positive in Canada, France, Germany, and Italy, and was large in the last three. The simple correlation coefficient for 'excess' increase in the quantity of money and the increase in the quantity of money in 1953-57 is negative (−0·39 on the basis of the data as estimated by the first method and −0·33 on the basis of the data as estimated by the second method). The coefficient is of the (theoretically) 'wrong' sign.

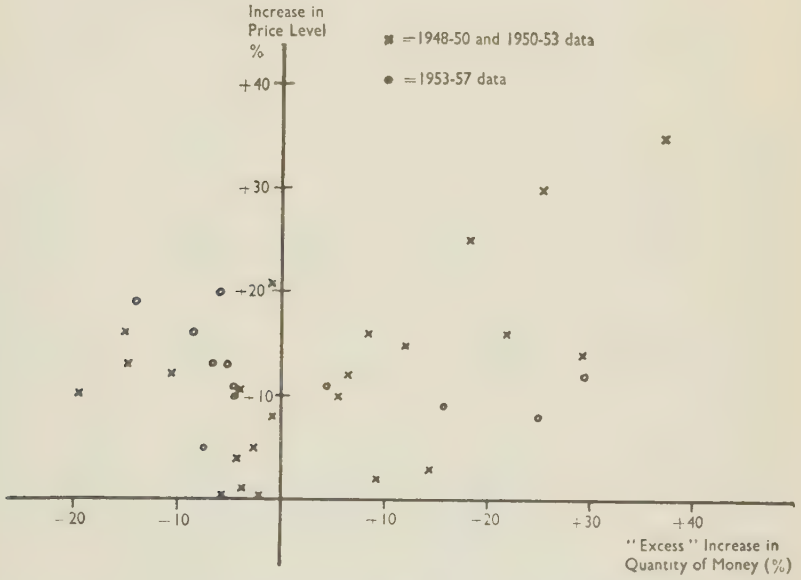

FIG. 2

The extreme cases are the Netherlands and Germany. In the Netherlands the quantity of money rose by only 14 per cent. as against a rise in real G.N.P. of 23 per cent., yet the price level rose by 19 per cent.; in Germany, on the other hand, real G.N.P. rose by 34 per cent. while the quantity of money rose by 49 per cent. (notwithstanding Germany's reputed 'tight money' policies), yet the price level rose by only 9 per cent. The differences are not explicable in terms of deficiencies of demand in those countries where the 'excess' increase in the quantity of money was positive; unemployment was indeed high in Germany and Italy throughout the period, but it was not 'deflationary' unemployment. It must therefore be concluded that if a connection did exist between the 'excess' increase in the quantity of money and changes in the price level, then it was swamped by other and more powerful influences.

Changes in the Quantity of Money and in Other Kinds of Credit

The extension of credit of all kinds places the recipients of it in the possession of means of making their demands effective, not just those forms of credit which have their counterpart in the form of money, as conventionally defined. The quantity of money exerts a decisive

Table VI

ANNUAL INCREASES IN AMOUNT OF MONEY AND CREDIT
($ billion)

	1954	1955	1956	1957	1958	1959
1. Total credit and equity market instruments .	28·4	44·0	30·7	36·7	46·2	61·5
2. Loans by commercial banks .	3·0	12·1	8·0	3·8	4·5	12·5
3. Trade credit given by non-financial corporations . . .	3·9	10·2	6·1	1·9	2·6	6·8
4. Increase in demand deposits and notes in circulation . .	4·5	2·3	1·7	−0·8	5·8	1·1
5. Time deposits .	5·5	2·9	3·6	6·8	10·1	2·2
6. Time deposits plus demand deposits plus notes in circulation (equals 4 plus 5)	10·0	5·2	5·3	6·0	15·9	3·3

Source: *Federal Reserve Bulletin*, August 1960 (figures for 1955-9) and August 1959 (figures for 1954).
Line 1: Table 3, line IV-A.
Line 2: Table 3, line IV-c.
Line 3: Table 4D, line T.
Line 4: Table 3, line I-A.
Line 5: Table 3, line II-B.

effect on the level of expenditure only if there is a very close link between the quantity of money and the amount of credit of all types extended. Professor Sayers has argued[13] that this link is not at all close, that other types of credit can expand and make it possible for

[13] 'Monetary Thought and Monetary Policy in England,' printed in *The Banker*, October 1960, pp. 671-83.

TABLE VII

CHANGES IN QUANTITY OF MONEY, GROSS NATIONAL OUTPUT AND PRICE LEVEL

	1948-50 %	1950-53 %	1953-57 %	1948-50 %	1950-53 %	1953-57 %	1948-50 %	1950-53 %	1953-57 %
	Belgium			*Canada*			*Denmark*		
Quantity of money	+3·2	+15·5	+9·8	+11·2	+5·3	+18·3	−7·7	+14·3	+5·0
G.N.P. at current market prices	+8·2	+20·3	+27·4	+19·3	+40·3	+26·5	+23·4	+23·1	+24·5
Income velocity	+4·9	+4·3	+16·0	+7·3	+33·3	+6·9	+34·0	+7·6	+18·5
Price index	0	+10	+11	+8	+16	+11	+10	+16	+13
G.N.P. at constant prices	+9·0	+10·0	+14·5	+11·6	+20·1	+13·6	+12·0	+5·8	+10·2
	France			*Germany*			*Italy*		
Quantity of money	+44·5	+48·9	+53·5	+44·0	+40·6	+49·8	+27·2	+48·5	+49·3
G.N.P. at current market prices	+42·3	+51·7	+39·0	n.a.	+45·5	+45·8	+17·4	+34·8	+34·2
Income velocity	−1·3	+1·6	+9·7	n.a.	+5·1	−2·7	−7·5	−9·3	−3·5
Price index	+16	+35	+12	n.a.	+15	+9	+3	+14	+8
G.N.P. at constant prices	+22·7	+11·7	+23·9	n.a.	+28·6	+33·9	+13·0	+19·3	+24·2
	Netherlands			*Norway*			*Sweden*		
Quantity of money	−2·9	+20·7	+9·1	−3·5	+29·9	+9·6	+9·7	+31·1	+12·3
G.N.P. at current market prices	+25·5	+28·0	+46·1	+18·3	+38·3	+36·8	+11·8	+37·6	+33·9
Income velocity	+28·9	+5·8	+33·8	+22·6	+6·5	+24·9	+1·9	+5·0	+19·1
Price index	+13	+12	+19	+12	+25	+20	0	+30	+13
G.N.P. at constant prices	+11·8	+14·1	+23·1	+7·1	+12·2	+15·8	+11·8	+5·8	+19·0
	Switzerland			*United Kingdom*			*United States*		
Quantity of money	+9·9	+12·3	+16·8	+3·1	+4·9	+3·3	+4·8	+11·5	+5·8
G.N.P. at current market prices	+2·0	+20·2	+30·7	+11·6	+27·6	+29·4	+9·9	+28·4	+20·9
Income velocity	−7·5	+6·9	+11·9	+8·2	+21·4	+25·5	+4·7	+15·6	+14·2
Price index	+2	+5	+5	+4	+20	+16	+1	+11	+10
G.N.P. at constant prices	+0·5	+14·9	+24·3	+7·4	+5·8	+11·7	+8·5	+16·0	+10·3

Sources: Quantity of money: end of year totals, from International Monetary Fund, *International Financial Statistics,* February 1958 and February 1960. G.N.P. and price index: O.E.E.C. *General Statistics,* January 1960, except for Norwegian G.N.P. at constant prices, which are from the January 1959 issue, and the French data for 1948, which are from *Statistics of National Product and Expenditure No. 2* (O.E.E.C., 1957). The price index is for G.N.P. as a whole and is derived from the estimates of G.N.P. at constant prices.

orders for production to be placed without an expansion of bank credit, and that the demand for additional money comes late in the day, if at all. If the extension of credit by financial intermediaries and the extension of trade credit possess considerable independence of changes in the quantity of money, there is an important means by which an increase in monetary expenditure may be financed without any increase in the quantity of money, as conventionally defined. Among the grounds for believing that there is such a degree of independence between the quantity of money and the volume of credit of all kinds is the evidence provided by the 'flow-of-funds' accounts prepared by the Board of Governors of the Federal Reserve System for the United States. Table VI sets out some of the figures.

It will be seen that the total increase in credit and equity market instruments, or that total plus trade credit extended, did not move in harmony with changes in the quantity of money (defined both as excluding and as including time deposits) in the period 1954-59. In years in which demand was rising, such as 1955-56 and 1959 the volume of credit of all kinds extended rose rapidly, although the quantity of money rose but slowly compared with other years. The view that the lending of financial intermediaries and the extension of trade credit can finance an increase in monetary expenditure notwithstanding control over the quantity of money appears to be supported by the evidence from the United States in the last few years. Certain senior economists of the Federal Reserve System have of late laid considerable stress on increases in the amount of credit of all kinds, not just on bank credit or the quantity of money.[14]

Conclusions

It thus appears that the connections between changes in the quantity of money and changes in aggregate monetary expenditure and the price level are indeed very hazy. Putting the same point in another way, the income velocity of circulation is very variable, and the variations do not seem explicable in motivational terms. In the identity $MV \equiv PT$, V appears to a considerable extent to be 'demand determined,' in the sense that total expenditure can change independently of the quantity of money. This is reflected *ex post* as a change in V, which change is a consequence and not a cause of the change in total expenditure. This is not to deny that there may exist limits to the

[14] See the articles by R. V. Roosa and W. Thomas in 'Controversial Issues in Recent Monetary Policy: a Symposium' in *Review of Economics and Statistics*, August 1960. The views expressed by Messrs. Roosa and Thomas were their own, not those of the Federal Reserve System.

velocity of circulation which arise from the need to hold minimum money balances. But neither monetary theory nor recent experience give any guide about where these limits are. Over the long period there may well be some correspondence between changes in the quantity of money and changes in the price level; but in the short run this correspondence does not hold, and so cannot be relied on to maintain price stability.

The inference to be drawn from this is not that monetary policy is useless as a technique for influencing the level of demand, but rather that attention should be concentrated on those aspects of monetary action that impinge on decisions that do directly influence the level of demand. Instead of treating the quantity of money as the 'centre-piece' of monetary action, it is more useful to concentrate on changes in the availability and cost of credit and the effects of changes in security prices on the willingness of holders of such assets to sell them in order to finance expenditure. It may well be that when monetary policy is looked at in these terms the conclusion tends to be that of the Radcliffe Committee: 'Monetary measures can help; but that is all.'[15] But for economic control even this is well worth having. Because of the lack of any satisfactory account of the process by which changes in the quantity of money affect the volume of monetary expenditure, recommendations that the economy be controlled mainly (and in extreme cases exclusively) by regulation of the quantity of money tend to run too much in what Sir Robert Hall has referred to as 'magical' terms.[16] What is needed is analysis of the channels through which monetary measures affect demand, which components of demand are affected in the first instance, and the magnitude and timing of the effects, in the same way that the effects of fiscal policy and direct controls are analysed.

Finally, two important qualifications must be noted. Firstly it is open to debate whether the monetary events of the years 1953-57, which figure so prominently in the analysis, can be regarded as sufficiently 'normal' for inferences drawn from them to be relevant for the future. It could be argued that although these years were less 'abnormal' than the preceding post-war years, the after-effects of the war had not yet worn off. But as far as the ratio of the quantity of money to the gross national product was concerned, in most countries the abnormal increases in the quantity of money occurring during the war had been absorbed by 1953. Nevertheless, the standard of comparison used was the ratio of the quantity of money to gross national

[15] *Report*, para. 514.
[16] *Economic Journal*, December 1959, p. 648.

product in 1938, a year in which liquidity was generally 'high' compared with what it had been before the initiation of policies of credit expansion to meet the Depression. Institutional changes between 1938 and the 1950's might also have reduced the relevance of 1938 as a standard of comparison. It is not beyond reasonable possibility, therefore, that in 1957 there still remained some 'excess' money to be absorbed, and when this was done proportionality between changes in the quantity of money and changes in monetary expenditure would appear.

The second qualification concerns the comparability of the data. The application of a uniform concept of 'money' in the classification of the financial assets existing in different countries is made difficult by institutional differences, so that it can be contended that the apparent differences between the changes in velocity of circulation in different countries may merely reflect differences in the definitions of money in the countries considered. That this is the sole explanation is rendered unlikely by the efforts of the International Monetary Fund to apply the concepts of 'money' and 'quasi money' in a uniform way in its Monetary Survey. If the economic significance of the 'quantity of money' varies much from country to country within a group of economically advanced Western countries, this is all the more reason for considering the effects of monetary measures in terms of flows of credit through institutional channels rather than in terms of the quantity of money, a universal concept which abstracts from all institutional considerations.

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THE SCOTTISH INDUSTRIAL ESTATES

THE establishment of industrial estates in the 1930's as part of the government's policy for the creation of employment and the diversification of industry was a novel undertaking. Comparatively little information has been published on the results of this policy.

The object of this article is to present the findings of an enquiry into the experiment in Scotland. The types of firms, their reasons for coming to the Scottish industrial estates, their experience and opinions about the estates were investigated. The managements of nearly one-third of the tenant firms were interviewed and the information they gave was supplemented by data provided by government departments.

Scottish Industrial Estates Ltd., which established the first estate in Scotland and developed the subsequent ones, was incorporated in 1937.[1] Its capital was provided under the Special Areas (Development and Improvement) Act 1934, as was also the capital of three similar companies in England and Wales. The purpose of the companies was to provide factories on a rental basis in order to attract light industries to South-west Scotland, North-east England, West Cumberland and South Wales. These were generally referred to as the 'distressed areas' for some years before the government scheduled them in 1934 as 'Special Areas' in need of help.

The Scottish Special Area was situated in the south-west of Scotland but Glasgow was excluded for reasons of prestige—or so it was believed at the time. Unemployment in the area reached a peak in 1932 when in towns such as Clydebank, Port Glasgow and Motherwell over half the insured population was out of work. An investigation sponsored by the government into local conditions showed a permanent surplus of male workers estimated at 60,000.[2] The Industrial Transference Board did not succeed in finding work for unemployed workers elsewhere. The government therefore sought to bring work to them by encouraging firms in the light industries to go to the Special Areas. The main inducements offered were the facilities of the industrial estates.

There were four industrial estates in the south-west of Scotland by 1939. After the war, although heavy unemployment was no longer

[1] The name has been changed to Industrial Estates Management Corporation for Scotland.

[2] Ministry of Labour, *Reports of Investigations into Industrial Conditions in Certain Areas*. Cmd. 4728. 1934.

the problem, the percentage of unemployed in the region remained higher than the average for the United Kingdom; there were sizeable pockets of unemployment and the dominance of the heavy industries had not been appreciably reduced. The government believed that the need for the industrial estates had not disappeared and their development was resumed under the Distribution of Industry Acts 1945 and 1950. The Scottish Special Area was renamed a 'Development Area' and extended to include Glasgow, Dundee, and later the Highland Area around Inverness. S.I.E. Ltd. ceased to be an autonomous body and became an agent of the Board of Trade in the administration of the estates.

There are now 21 industrial estates in the Scottish Development Area ranging in size from Hillington with over 100 tenants to Kilwinning with one (see Table I). They provide 17 million sq. ft. of factory space and house 331 firms[3] employing some 60,000 workers.[4] By comparison, total employment in the Scottish Development Area at mid-1959 was 1,187,270. There are also 26 individual site factories and 15 ex-government converted factories.

TABLE I

GROWTH OF SCOTTISH INDUSTRIAL ESTATES

Construction work begun	Number of estates	Names of the estates
1937	1	Hillington (R)
1938	3	Carfin (L), Chapelhall (L), Larkhall (L)
1945	1	Newhouse (L)
1946	8	Blantyre (L), Carntyne (G), Dundee, Kilwinning (A), North Cardonald (G), Port Glasgow (R), Queenslie (G), Vale of Leven (DW)
1947	5	Coatbridge (L), Craigie (D), Craigton (G), Kilmarnock (A), Thornliebank (G)
1951	2	Caird's (R), East Kilbride (L)
1955	1	Longman (Inverness)

A=Ayrshire, D=Dundee, DW=Dunbartonshire West, G=Glasgow, L=Lanarkshire, R=Renfrewshire

S.I.E. Ltd., the Board of Trade and the Ministry of Labour have provided some information as to the 'status' (i.e. whether a sole manufacturing Scottish unit, or a branch firm), 'nationality' and size of 30€ of the tenants on the Scottish industrial estates (Table 2). A sample of about one-third of the tenants was selected so that the

[3] The firms are listed by name in the S.I.E. Ltd. Handbook (1959).
[4] S.I.E. Ltd. estimate.

percentage of firms in the different categories would correspond to that for the total number of tenants in those categories on the estates. Of the firms on 20 of the estates which were approached, 80 per cent. co-operated. To obtain a sample of 100, a number of firms not at first included were asked for interviews. The result was that the numerical distribution between the types of firm was less balanced than originally planned.

The sample was made up as follows (the figures in parentheses give the corresponding percentage for the 306 firms): —
Scottish units 40 (36); Scottish branches 9 (19); English branches 34 (31); foreign branches 15 (11); government and other public undertakings 2 (3). The firms in the sample occupied approximately 30 per cent. of the total floor area on the estates and employed 24,000 or 40 per cent. of the total number of workers there. Of the jobs which they provided, 55 per cent. were for men. The industrial make-up of the 100 firms was as follows: —producers of consumer goods 52, manufacturers of intermediate goods 43, service branches four, research one.

Table II shows the tenancy pattern, which was prepared on the basis of information from official sources and the sample study:

TABLE II

NUMBER OF UNDERTAKINGS AND FACTORY SPACE ALLOCATED

Area in /000 sq. ft.

	Pre-war		War		Post-war		Total	
	No.	Area	No.	Area	No.	Area	No.	Area
Scottish tenants (excl. branches)	29	269	5	49	75	1004	109	1422
Branches								
Scottish	4	16	4	95	50	1475	58	1586
English	14	201	6	33	76	3410	96	3644
Foreign	2	10	1	1	32	2056	35	2067
Govt. and other establishments	—	—	—	—	8	238	8	238
	49	497	16	177	241	8183	306	8857

Tenants tended to be of medium size as measured in terms of the factory floor area, occupying on the average 36,000 sq. ft.[5] Approximately one-third of the 306 tenants were found to be Scottish units. The rest, with the exception of a few government and other estab-

[5] S.I.E. Ltd. provides nest factories of 1,400 sq. ft., 'A' or 'E' blocks of 5,000 sq. ft., a number of engineering blocks of up to 60,000 sq. ft. and individual site factories which have averaged 87,000 sq. ft.

lishments, were branches, about half of them English. Most of the foreign branches had parent plants in North America.

In the 1930's the average allocation of factory space was 10,000 sq. ft. Since 1945 it has increased approximately 3½ times although the standard factory design of 5,000 sq. ft. has not been altered. This increase was made possible by the willingness of the Board of Trade to let several standard blocks to one tenant, sometimes on different estates, and to authorise S.I.E. Ltd., to build some large non-standard factories or to convert ex-government property to industrial uses.

During the pre-war period 59 per cent. of the tenants were Scottish units renting 54 per cent. of the total factory floor area. In the post-war period the proportion of Scottish units was reduced to 34

TABLE III

LOCATION OF MAIN WORKS OF FIRMS WITH BRANCHES ON THE SCOTTISH INDUSTRIAL ESTATES

English branches		Scottish branches	
Number of branches	Locations of main works	Number of branches	Locations of main works
43	London	41	West of Scotland
6	South of England	27	Glasgow
36	Midlands	5	Paisley
5	Birmingham	5	Other towns in Lanarkshire
1	Coventry	4	Renfrewshire
3	Leeds	5	Edinburgh
2	Liverpool	4	Rest of Scotland
4	Manchester		
2	Sheffield		
19	Other towns in the Midlands		
6	Rest of England		
91		50	

per cent. and their floor area to 15 per cent. Before 1939 Scottish branches represented 20 per cent. of the total number of branches, English 70 per cent. and foreign 10 per cent. After 1945 these percentages became 32, 48 and 20 respectively.

The location of the parent plants of the English branches shown in Table III suggests that many of them were 'overspill' departments of firms which could not expand in their home towns because of government restrictions on building or shortage of labour after the war. This would not have affected the 80 per cent. of the Scottish

branches whose parent plants were already in the Scottish Development Area.

Branches on the estates were further classified on the basis of their production into: producers of the same goods as the parent plant; processors of goods at some stage of production; service plants for goods produced by the parent plant; manufacturers of entirely different articles. The majority of the tenants belonged to the first two categories. Foreign branches were mainly assembly plants.

The Scottish industrial estates attracted firms from many light industries. Their contribution to the diversification of the industrial structure of the area can be considered from two angles: that of the industrial group to which they belonged and that of their newness to the area. Approximately one-fifth of the tenants belonged to industries already fairly well represented in the area, such as food and drink, paper and printing, textile and clothing industries. There were few chemical firms, but a number of other growth industries did come to the estates. Among these the accounting and office equipment industry was conspicuous. In this industry, which is new to Scotland, five of the leading firms established branches on the estates. Many of the tenants, however, neither brought new industries, nor were themselves new to the Scottish Development Area. A high percentage of the Scottish branches belonged to parent plants already in the Area.

Of the 84 firms in the sample which gave their age on arrival at the estates 77 were established businesses in the sense that they had been in existence for at least five years and 27 of them were over 50 years old.

The reasons which firms gave for coming to the Scottish industrial estates were investigated and are listed in Table IV. These reasons were not tabulated separately for Scottish units, and Scottish, English and foreign branches because the reasons given did not basically differ. There was, however, a slight difference in emphasis.

The first fact which emerged was that few of the firms studied costs of production and distribution in alternative locations before they decided to go to the Scottish industrial estates. Those that made such estimates were mainly foreign branches.

Early occupation of a factory on the estates appeared to have been a particularly strong incentive for the English branches. Foreign firms more than others had been attracted by the modern design of buildings. The firms to which the availability of factories on a rental basis appealed most were mainly Scottish.

TABLE IV

FIRMS' REASONS FOR COMING TO THE ESTATES[a]

Reason	Number of the tenants giving the reason	
	No.	%
1. Scope for expansion, space available 34 / labour „ 21 / either or both could not be found in previous location or near the parent plant	55	40·1
2. Immediate or quick possession of a factory. This was particularly important for 5 firms whose original factories had been destroyed, 4 by enemy action during the war, 1 by fire	24	17·6
3. Local markets, firms wished to expand their share of the Scottish markets, or believed that there were potential customers	17	12·5
4. Factory offered, looked for premises, Scottish industrial estate suggested	12	8·8
5. Factory available on rental basis, had no capital to buy own premises, preferred to spend capital on modern machinery	9	6·6
6. Modern, well designed factory	7	5·1
7. Low rents	3	2·2
8. Strategic location	3	2·2
9. Firms came during the war, had no choice, decided to stay on afterwards	3	2·2
10. 'Sentimental' motive, directors of Scottish origin	2	1·4
11. Firm came for sake of 'Made in Scotland' label, good selling point	1	0·7
	136	100

[a]Answers given by 96 tenants; some gave several reasons.

Whatever the reasons for which the various firms came to the Scottish industrial estates, whether they remain depends on their estimates of the advantages and disadvantages of being there. 88 of the firms in the sample gave their views on the advantages (Table V).

Firms found it difficult to compare rents on the estates with those in other locations. Some owned the buildings which they previously occupied or the factories were not comparable. A number thought that rents on the estates were about one-third of what they would have to pay in the centres of industries to which they belonged. There was a further advantage that firms coming to the estates were given a rent rebate of 30 per cent. in the first year of tenancy, 20 per cent. in the second and 10 per cent. for the subsequent three years.

The disadvantages mentioned by the firms were considered under two headings; criticism of the S.I.E. Ltd. itself and of the location generally (Table VI).

TABLE V

ADVANTAGES OF TENANCY

Advantages	No. of tenants mentioning them
1. Immediate possession of a factory or early date of entry	18
2. Factory available on rental basis	40
3. Low rent	17
4. Convenient factory of good, modern design	36
5. Pleasant surroundings	19
6. Security of tenure	2
7. Industrial services, maintenance of buildings by S.I.E. Ltd., arrangements for supply of electricity etc.	14
8. Community services, canteens, sports grounds	14
9. Tenants' Association, collective benefits, help with repair of machinery, some inter-trading	6
10. Location in an area which is not industrially congested	2
11. Proximity to markets	2
12. Labour available	18
13. Strategic location	1

TABLE VI

DISADVANTAGES OF TENANCY

Disadvantages	No. of tenants mentioning them
1. High rent	6
2. High heating charges	6
3. Unsuitable buildings	3
4. No alterations to buildings by tenants allowed	5
5. No room for expansions	4
6. Red tape in dealings with S.I.E. Ltd.	2
7. Transport difficulties	10
8. Distance from the centre to which the firms belonged	8
9. Site not easily accessible to customers	2
10. Distance from parent plant	2
11. Labour shortage	5

The main complaint was high heating and rent charges. Few of the critics, however, had made estimates of how much it would have cost them to provide their own heating. Nor did they say on what basis they claimed the rents to be high. Until recently the rents have been calculated on the 1939 values; they have now been revised to

correspond more to an economic rent but the 5 year rent rebate has continued to be given.

Only a few of the tenants were dissatisfied with services or the factories on the estates. In most cases when firms required some alterations, S.I.E. Ltd. carried them out.

Location requirements were considered under the headings of site, transport, proximity to markets and parent plants, and labour. 98 of the firms answered the questions on these. The importance which they attached to the different requirements did not vary so much with the type of the tenant as with the kind of goods produced and the methods of production and distribution.

TABLE VII

MARKETS OF 93 TENANT FIRMS[a]

Area	Number of firms	
	Buy raw materials	Sell their products
Scotland	18	27
Scotland and England	37	57
England, all areas	18	7
Midlands only	8	1
South of England only	12	1
	93	93

[a] Excl. service branches 4, govt. establishment 1, research centre 1, n.a. 1.

(a) Site. All the firms wanted sites where there was room for expansion. Most of those which had been able to expand did so, either by acquiring neighbouring blocks, or by moving to another factory on the same or another of the Scottish industrial estates. Such moves did not involve financial loss that might have followed the termination of a lease of a privately owned factory. 89 of the tenants preferred a site in an industrial, and 9 in a rural area.

(b) Transport. All the firms regarded good road and rail services as important on account of the transport of their workers and goods but the majority relied more on the road services for both. Firms criticised the facilities, particularly the passenger services which they said were inadequate. For goods transport many of the firms depended on their own vans. Firms manufacturing largely for export were near the Clyde Docks.

(c) Markets. Of the 24 firms which emphasised the need to be near markets for raw materials the majority were using bulky or perishable material. 55 of the firms obtained all or some of their raw materials in Scotland (Table VII). But a number of the English branches was entirely supplied by the parent plant.

More firms attached importance to proximity to markets for finished products, mainly on the grounds that it was easier to obtain orders. 27 of the firms sold their output locally and 57 both in the Scottish and English markets, but for these firms orders from England tended to be bigger. The tenants who did not sell directly in Scotland were branches. 37 of the firms in the sample exported some of their production (Table VIII); the majority of them were English branches.

TABLE VIII

EXPORTS

% of production exported	5-10	11-20	21-70	41-60	61-80	81-100	5-100
No. of firms	7	4	8	10	5	3	37

(d) Proximity to parent plant. Only ten of the branches believed that the parent plant had regarded proximity as a major consideration in selecting their site. A distance of 17 to 20 miles was given as a maximum for the convenient operation of the branches if a close link was required.

(e) Labour. Firms regarded the supply of labour as one of the foremost considerations in the location of a plant. Nearly half of the jobs were filled by women. 32 of the firms in the sample required predominantly skilled workers, 24 mainly semi-skilled and 11 unskilled.

Although many of the workers did not originally possess the skills required, 85 of the firms said that they found workers locally who, after training, satisfied their requirements. Ten were building up a labour force and only three were dissatisfied.

All the firms on the estates had to train some or all their workers but the methods and intensity varied depending to some extent on how new the industry was to the area (Table IX). The firms which needed the facilities of technical colleges or further education centres for their workers had them within easy reach.

The firms' views on Scottish labour were particularly sought because in the past it had been alleged that employers in light in-

dustries were deterred from setting up factories in the Clyde Valley because of the reputation of its workers.[6] 91 of the firms found the local workers adaptable, hard-working and willing to learn. Two did not regard them as hard-working or responsive to financial rewards. Five had a low opinion of their workers.

TABLE IX

LABOUR TRAINING METHODS

Method of training	Number of firms
On the job only	54
Additional methods—	
Training centre before production started	3
Workers sent to parent plant or other branches	5
Apprentice scheme	15
T.W.I. schemes	7
Own welding school	1
Regular training scheme of some sort	6
Scholarship for University	1
Trade Union courses	1
Analytical method of training introduced by a management and training consultant	1
	94

It proved difficult to obtain data for the costs of production and distribution of the firms on the Scottish industrial estates. The firms interviewed were reluctant to disclose figures and at the best gave rough percentages. No calculation of their costs or comparison with similar plants in other areas was possible. Such information as the firms gave, did, however, permit some generalisations to be made.

The first cost incurred by firms in moving to the Scottish industrial estates was the actual transfer cost. The expense of moving the machinery was a small percentage of its value, and some firms took the opportunity of the move to sell their old equipment and to start off with new machinery on the estates. The duration of the break in production varied, depending on how long it took to shift the machinery and stocks, and to find and train workers (Table X). A number of Scottish firms already in the area moved by stages without interrupting production completely or had a break of only a few days. Some of the firms had to bring machinery from abroad and this took time. The two with the longest hiatus in production were

[6] Industrial Transference Board *Report*. Cmd. 3156. 1928. Board of Trade. *Industrial Survey of the South West of Scotland*, 1932.

held up by delay in the supply of component parts for the articles they produced.

TABLE X

BREAK IN PRODUCTION

Period	No. of tenants
No stop	2
Almost at once	12
Few weeks	11
One month	2
2-3 months	9
4-5 months	7
6-7 months	6
9 months	2
	51

Training the employees was in the opinion of the firms not expensive because they relied largely on semi- or unskilled workers. But many firms, particularly English branches, estimated the cost to be higher than in areas which were centres of light industries, because workers there would be more likely to have been trained for similar jobs.

The firms on the estates found that their cost of training was kept down by what they described as low labour turnover. Some attributed this to the lack of alternative employment on the same type of job in the neighbourhood. Only a few English branches believed their turnover to be higher than was usual for the industry to which they belonged.

The firms on the estates tended to pay the same wage rates as the firms in neighbouring Glasgow. These rates were negotiated by the Trade Unions and did not vary much as between Glasgow and other large cities with the exception of London.

Wages represented less than 50 per cent. of the prime costs (i.e. labour and materials) for 29 out of the 48 firms which gave percentage figures (Table XI).

TABLE XI

LABOUR AS A PERCENTAGE OF PRIME COSTS IN 48 FIRMS

Percentage	1-20	21-30	31-40	41-49	50	51-60	61-70	71-80	81-90
No. of firms	8	5	11	5	7	5	3	3	1

Overhead charges such as those for electricity, gas and water were considered by the firms very much the same as elsewhere. On

the whole, the firms thought that local rates compared favourably with those in other areas and that there was some saving on rents.

The cost of transport, in the opinion of most of the firms, added considerably to the price they had to charge. Not only was there the freight charge but in some cases, because of transport difficulties, firms had to carry abnormally large stock to ensure a steady flow of production. Again, in some cases there was a delay in getting the goods to customers.

The firms in the sample gave no figures for their sales costs but said that these were increased by the distance from their main markets. This depended to some extent on the methods of distribution used. Twelve of the firms interviewed marketed their products through wholesalers, ten depended largely for orders on the response to their advertisements, three established their own shops and five sales offices in a number of big towns. The rest relied mostly on their sales representatives.

The enquiry thus bore out the general impression that firms on the Scottish industrial estates are not conscious of any marked competitive handicap in relation to other areas. It seems likely that, for a majority of them, operating costs are somewhat higher than in the main centres of the industries concerned but the differences are reduced by favourable rents and other factors. The firms claimed that they could operate at what they described as an adequate profit margin.

At the same time the estates have achieved success in bringing new industries to Scotland and creating additional employment. Although the firms on the estates provide only 5 per cent. of the total number of jobs in the area they account for a much higher proportion of new industrial capacity and their location has helped to reduce some pockets of local unemployment. More industrial diversification could perhaps have been achieved had fewer factories been allocated to firms in industries already fairly well represented. But since such firms were in light industry they have helped to reduce the local over-dependence on heavy industry.

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NEW INDUSTRIAL BUILDING IN GREAT BRITAIN 1923-38: A PROBLEM IN MEASUREMENT

INDUSTRIAL building is easily recorded but measured only with difficulty. From various dates in the nineteenth century local authorities kept registers of plans submitted and approved for buildings of all kinds. Houses, schools, chapels, mills, factories and almost every other kind of structure were all recorded, sometimes with precise descriptions, sometimes very inadequately. These registers have already been used as a source of historical statistics on house building,[1] but it is less easy to obtain satisfactory series for industrial building. Usually the registers simply record entries such as 'new mill', 'tool factory', 'extension', or 'shed', and give little guidance about the size of the project. Sometimes, when the actual plans still exist, it turns out that an extension would more than double the original size, while a shed might be anything from a weaving shed capable of employing scores of people to a shelter for a bicycle or a gate-keeper. For this reason, while the number of industrial plans passed in any year is certainly some measure of the number of industrial concerns who are planning expansion, it is a very inadequate measure of either the volume or the value of building. A single plan passed in one year may represent a greater investment than twenty passed in the following year, and it may mean several years of building activity. Alternatively it may just not materialise. The number of industrial plans passed is a measure of optimism, rather than of anything else, lagged by the time taken to prepare a plan and to get it passed. Useful series of this kind have been obtained for Glasgow, Hull, Coventry, Bradford, Birkenhead, Oldham, Bolton, Salford and a number of smaller towns around Manchester. Some of these series go back to 1850, but as yet they are too few to warrant a detailed analysis of industrial building in the nineteenth century, even within the limitations just indicated.

From 1911 an important change took place. The Board of Trade began to publish the estimated cost of the buildings for which plans had been approved in a large number of towns. The data were broken

[1] See B. Weber, 'A New Index of Residential Construction, 1838-1950', *Scottish Journal of Political Economy*, 1955, pp. 104-132, and J. Hamish Richards and J. Parry Lewis, 'House Building in the South Wales Coalfield, 1851-1913', *The Manchester School*, 1956, pp 289-300.

down into various sub-groups of which one was headed 'factories and workshops.' Originally 78 towns were covered. In 1922 building costs fluctuated so much, and so many approved plans were abandoned, that no data were published for that year, but in the following year the series re-appeared for 146 towns,[2] broken down on a regional basis. Publication of the statistics was discontinued at the outbreak of war in 1939.

Valuable as this series is, it suffers from certain defects. The 146 towns, with a 1931 population of about 17,500,000, excluded the whole of the London County Council. The Local Authorities were given no precise definitions, but were simply asked for the total number of buildings and the total estimated cost under each group. There was no ruling, for example, on whether a power-station should be counted under 'Factories and Workshops' or put into the group headed 'Other Buildings; and Additions and Alterations to Existing Buildings.' Certain statutory authorities were exempted from the necessity of submitting their plans to the local authorities, and buildings erected by them were therefore not covered. Another defect arises out of the changing costs in the building industry. This is not simply the problem of expressing building values in terms of constant prices, but also of assessing the reliability of the original estimates of cost. Even in times of stable prices the estimates might frequently be wrong. When prices change, the margin of possible error seems to be greater, unless (and there is no way of checking) the estimates

TABLE I

ESTIMATED COST OF NEW FACTORIES AND WORKSHOPS FOR WHICH PLANS WERE APPROVED IN 146 TOWNS IN GREAT BRITAIN, 1923-38 (£m.)

Year	Original data	At constant (1930) costs	Year	Original data	At constant (1930) costs
1923	3·62	3·22	1931	2·73	2·77
24	3·78	3·46	32	3·07	3·26
25	4·35	4·09	33	3·70	4·08
26	3·75	3·52	34	6·07	6·70
27	4·98	4·74	35	7·67	7·91
28	5·43	5·27	36	10·06	10·01
29	6·24	6·24	37	9·28	8·68
30	4·58	4·58	38	7·47	6·99

Source: See text.

[2] The number of towns covered by the returns published in the Ministry of Labour Gazette fluctuated slightly, due chiefly to delayed replies from a few towns. The *Abstracts of Labour statistics of the United Kingdom* provide adjusted figures for most of the years. In the other years the necessary small adjustment has been made by considering population figures.

attempted to allow for price changes. All one can be sure about is that the estimated cost almost certainly differed from the actual cost. Table I shows the course of the value of new factory and workshop plans passed during 1922-38 and an attempted deflation of this series in terms of 1930 building costs, but not too much reliance should be placed on the deflated series because of the inevitable approximations involved in compiling and applying an index of costs.

Another source of information is the Censuses of Production for 1924, 1930 and 1935. A detailed inspection of these allows one to estimate the total value of new construction of factories and workshops (including electric power stations, gas works, etc.). These estimates are presented in Table II, which also expresses them as percentages of the 1930 value for purposes of comparison with the estimated values of plans approved in 146 towns.[3]

TABLE II

INDUSTRIAL BUILDING IN GREAT BRITAIN IN 1924, 1930 AND 1935

	1924	1930	1935
1. Total value of new factory and workshop construction. Census of Production. £mn.	14·0	16·6	21·2
2. Row 1 in index form, 1930=100	84·3	100·0	127·7
3. Index of estimated value of factory and workshop plans approved in 146 towns, 1930=100	66·5	100·0	119·7

Between the two indices shown in Table II there is a considerable divergence. According to the Census data, industrial building was about a fifth higher in 1930 than in 1924; on the other hand there was an increase of nearly a half in the value of plans passed. This discrepancy cannot be explained in terms of any uniform lag, as is apparent from the figures for plans passed in (for example) 1923 and 1929 given in Table I. It is a discrepancy that is to be expected and it underlines the danger of relying too heavily on plans passed as a measure of buildings erected. Almost certainly many of the plans passed in 1930 were never translated into structures, and others were doomed to gather dust for a few years until industrial demand became brighter. There is also the point, of course, that the 146 towns were not a very representative sample, as is shown by the complete exclusion of the whole of the LC.C.

[3] In his article 'Building Output and the Trade Cycle (1924-38)', *Oxford Economic Papers*, No. 3, February 1940, pp. 110-30, Professor Ian Bowen obtains rather lower estimates, namely £mn. 11·8, 14·0 and 16·0. The main reason for the difference is that Professor Bowen does not seem to have taken account of building carried out by Government Departments, utilities and other trades not classified under Building and Contracting. The 1935 figure is especially low because the Final Report of the Building and Contracting Trades for the 1935 Census was not published until four years after the publication of Professor Bowen's paper.

Yet there were deficiencies in the Censuses themselves, and it is useful that there is another indirect means of checking the reliability of the plans passed series as an index of activity. Between 1932 and 1938 the Board of Trade published a series of annual *Surveys of Industrial Development,* based on reports received from Factory Inspectors and on information collected from the Ministry of Labour. They contained particulars of new factories, extensions, employment generated and factories closed. The information was given by regions and industries and covered factories employing at least 25 persons at the end of the year. Establishments not engaged in manufacturing or processing goods (such as laundries) and certain Government establishments were excluded.

TABLE III

INDUSTRIAL BUILDING IN GREAT BRITAIN, 1932-38

	1932	1933	1934	1935	1936	1937	1938
1. Number of new factories opened	676	467	520	514	542	522	414
2. Employment provided by (1) (000)	44·1	29·8	40·5	50·0	49·5	45·3	53·2
3. (1) as an index (1932-38=100)	129·5	89·4	99·6	98·4	103·8	100·0	79·3
4. (2) as an index (1932-38=100)	98·8	66·8	90·7	112·0	110·9	101·5	119·2
5. Estimated cost of factories and workshops for which plans were approved in 146 towns (1932-38=100)	45·4	54·7	89·8	113·5	148·8	137·2	110·5
6. (5) expressed in terms of constant costs (1932-38=100)	48·1	60·1	98·7	116·5	147·3	127·7	102·5

Source : See text.

Table III summarises the principal data from this source. The first series, showing the number of new factories opened, represents, of course, the termination of building. A peak year in this series could easily be a year later than the peak in some series showing the number of factories actually under construction. In times of

depression the tendency to suspend or to slow down building already commenced could so delay the opening of the factories as to exaggerate the lowness of activity in some years and yet to understate it in others; the longer the building period, the less reliable is a series of factories opened as an indicator of factories being built. For these reasons one must be careful not to read too much into the differences between consecutive years, especially in times of rapid economic change. Statistics of factories opened are useful indicators of new productive capacity available for immediate use; but they are very imperfect indicators of building. Quite apart from these considerations there is the fact that the first series in this Table, showing the number of factories opened, says nothing about their size. There are two possible ways of overcoming this deficiency. One is to consider the second series in the Table which indicates the numbers of jobs provided by the new factories, but this can be considered as only a rather crude measure of the volume of building. It is however interesting to notice the contrary movements of these two series between 1937 and 1938, which emphasises the inadequacy of the former series. Finally these series suffer from the exclusion of smaller factories and certain other establishments.

Table III is completed by the conversion of the absolute figures in the first two rows into index numbers taking the averages for 1932-38 as bases, and the inclusion of two more indices, derived from Table I, showing respectively the estimated value of approved plans for new factories and workshops in 146 towns, and the same data adjusted for changes in costs, both expressed as index numbers on the base 1932-38=100. It will be noticed that the adjustment for cost makes no difference to the direction of change between one year and the next. For this reason, and to avoid confusion, only the unadjusted index of cost is graphed in Fig. 1. Of course, since planning precedes building while the opening of a factory follows it, there is bound to be some lag between these series, but the diagram takes no account of this.

The most obvious feature of the diagram is the amplitude of the oscillation in plans passed. During 1933-35 the new employment index rose from 66·8 to 112·0—an increase of 68 per cent.: but the value of plans passed more than doubled (and almost doubled even if allowance is made for changes in costs). If a lag of one year is introduced, so that we consider the plans of 1932-34, the result is virtually the same. One reason for this wide discrepancy could be that much of the building of 1933 arose out of plans passed before 1932. Another could be the failure of plans to materialise, as excessive optimism gave way to more realistic appraisals of the future, and to some slight

extent this is substantiated by the fall in new employment between 1935-1936. Probably both of these factors were operating, along with others. The fall in the value of plans passed in 1937 and 1938 suggests that very probably many of the 1936 plans were either abandoned or

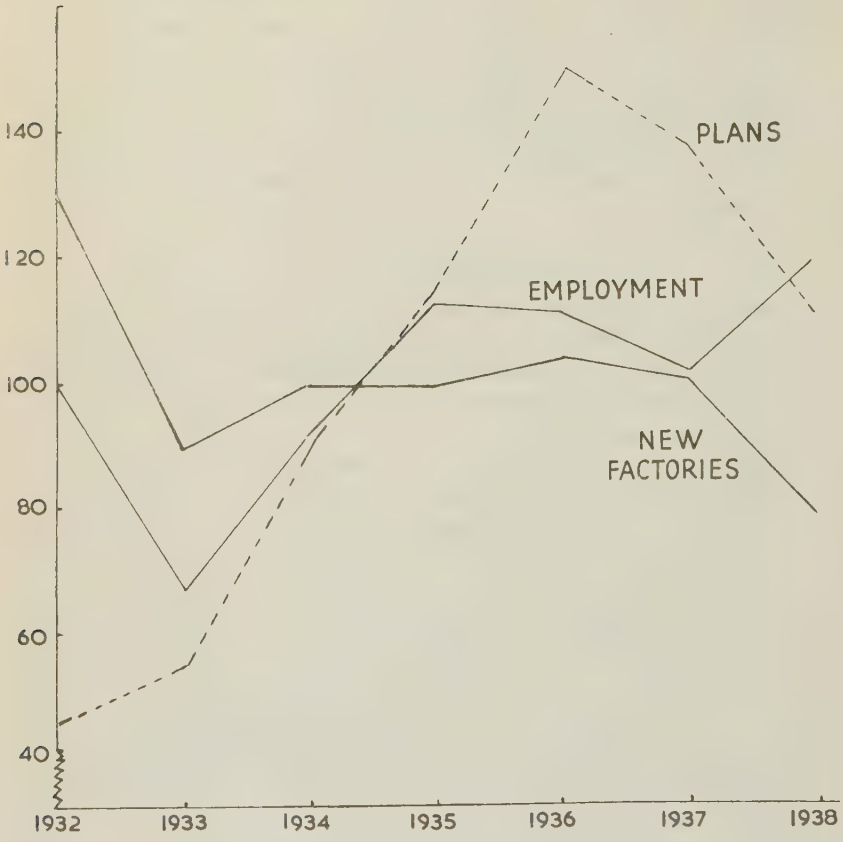

FIG. 1
Industrial building in Great Britain (1932-38=100). *Source*: Table III.

held up, and perhaps some of the rise in employment in 1938, associated with a fall in the number of new factories, is due to plans passed in 1936 or earlier for large factories which took a long time to complete, partly because of their size and partly because of slower building due to a less optimistic outlook. Some of the difference between the series must also be due to the large part played by small industrial concerns whose factories would appear in the plans series but not in the others.

To sum up it seems that we know very little about the actual amount of industrial building going on in any year. The best documented years are 1924, 1930 and 1935, in which, for all their shortcomings, the Censuses of Production provide useful estimates of building actually taking place. For the other years we have on the one hand a somewhat hazardous estimate of costs of intended new building in a non-representative sample of towns, and on the other hand two series relating to new factories opened of which neither is an adequate measure of actual investment. We can be tolerably certain that during 1924-1929 building boomed, and that it then fell until some time in 1931-33. The years 1934 and 1935 saw increasing activity: but except that no dramatic fall is likely to have occurred it is difficult to say much about 1936-38.

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HOUSE RENTS IN GREAT BRITAIN 1845-1913

The following Table (on which Fig. 1 was based) was unfortunately omitted from the article by Mr. B. Weber in the November 1960 issue of the *Scottish Journal of Political Economy*:

Year	Weber[a]	Cairncross[b]	Singer[c]	Year	Weber[a]	Cairncross[b]	Singer[c]
1845			55·6	1888	92·9	93·0	92·0
48			57·7	9	92·7	93·9	
51			57·9	90	92·7	93·9	
53			60·3	1	92·7	94·8	
57			63·0	2	92·9	94·8	
61			67·5	3	94·5	95·7	93·9
64			71·1	4	95·4	95·7	
67			75·7	5	95·6	96·5	
70		87·0	79·2	6	95·8	96·5	
1		87·0		7	96·1	92·4	
2		87·8		8	98·4	98·3	97·7
3		88·7		9	99·3	99·1	
4	82·6	89·6		1900	100·0	100·0	
5	83·5	90·4		1	101·8	100·9	
6	86·3	91·3	85·6	2	102·3	101·7	
7	87·8	92·2		3	102·7	102·6	102·6
8	88·5	92·2		4	102·8	102·6	
9	89·7	91·3		5	102·5	102·6	
80	90·5	91·3		6	102·5	102·6	
1	90·8	91·3		7	102·7	102·6	
2	91·6	92·2	90·5	8	102·3	101·7	
3	92·0	92·2		9	105·6	101·7	
4	91·9	93·0		10	103·5	100·9	103·1
5	92·5	93·0		1	102·2	100·9	
6	92·7	93·0		2	102·2	100·9	
7	92·7	93·0		3	102·4	100·9	

[a] Index of average house rentals in great Britain (1900=100) calculated as described in text of Weber's article.
[b] Index of rents in England and Wales (1900=100) calculated by A. K. Cairncross.
[c] Index of rent on buildings in England and Wales (1898-1903=100) calculated by H. W. Singer.

THE MEANING OF 'EXCESS SUPPLIES OF LABOUR'

A FAIR share of the burgeoning literature on poverty, stagnation and growth among nations asserts that there are excess supplies of labour in the countries in which income per head of population is relatively low.

This is usually thought to be especially true in agriculture and the service industries but is occasionally said also to characterise manufacturing, especially of the cottage-industry type. In these sectors, idleness is disguised or concealed, as when people have employment but are 'really' unemployed. Alternatively, excess appears in the form of outright idleness.

What meaning has been given to the notion of excess supplies of labour?[1]

Sometimes it is made synonymous with a low output/worker ratio.[2] This is, of course, descriptively characteristic of poor nations and regions. Output per worker is partly a function of the quantity of other resources with which workers are combined in production. Labour productivity statistics are deceptive. They pretend, on their face, to represent goods and services produced by workers. Actually, they reflect the contribution to output of the whole constellation of co-operant factors. The larger the number of horsepower of mechanical energy used by each labourer, the larger will be his output, in a productivity statistical sense, in any time period. But if, in some country, the quantity of capital is relatively small, a larger share of output will be attributable to the skill and effort of the labourer, himself, as distinct from the factors which co-operate with him, than in countries where the quantity of capital is abundant. In such a capital-poor country, the withdrawal of a labourer will cause output to diminish proportionally more than in capital-rich countries. In both countries, the capital which the withdrawn worker had used is now re-combined with those who remain and their output rises

[1] Sometimes the notion of excess is used without definition, as though it had but one, evident meaning. For example, see Henry M. Oliver, Jr., *Economic Opinion and Policy in Ceylon*, Durham, Duke University Press, 1957, pp. 122-23.

[2] 'There is the problem of very low productivity, i.e. productivity being so low in the case of some of those who are nominally engaged in work . . . that, if judged by the criterion of their net contribution to the social output, they would seem to be *in effect* (italics in original text) unemployed.' K. N. Raj, 'Employment and Unemployment in the Indian Economy,' in *Economic Development and Cultural Change*, VII, 3, Pt. 1, April 1959, p. 258.

somewhat to compensate for the output loss produced by his withdrawal.

If 'excess' means that workers can be withdrawn without damaging output, therefore, it is not possible to speak of excess as though it exists *pari passu* with the existence of low per-worker productivity in the statistical sense. Nor can excess be created by low productivity, even if we abstract co-operant factors. Imagine two places, in one of which labour is of high quality and in the other low and in both of which the quantity of co-operant resources combined with labour is either zero or positive but equal. Withdrawal of some, equal proportion of the labour in the two places—that of high quality (high productivity) labour and that of low—will cause output to fall in equal proportions.

So the first proposition with respect to the meaning of 'excess' is rejected. Bootblacks are not excessive merely because they produce little.

A second, and related, proposition is that excess occurs because the same output can be produced by some sector with fewer workers, if factors are recombined so that more co-operant resources are combined with labour.[3] Equivalent variants are that some sector, or the economy as a whole, can produce a larger output, with the same number of workers, if more co-operant factors are combined with labour; or that the output of the economy will be greater if workers move from sectors in which the capital/worker ratio is low to others in which it is high.[4]

Thus it is said that, in many countries, there is an excess supply of labour in agriculture because, if workers used tractors rather than traction by oxen or pointed sticks, the industry could produce its

[3] 'Under-developed countries have vast man-power . . . In many of them the problem . . . of under-employment in rural areas at present exists . . . (This) problem(s) can be tackled if . . . human agents . . . are . . . brought in effective co-operation with other factors of production.' A. N. Agarwala, *Some Aspects of Economic Advancement of Underdeveloped Countries*, Allahabad, Kitab Mahal, 1958. 'As in most countries in Ceylon's stage of development . . . there is a high degree of under-employment, especially in the rural areas . . . Here is a growing reservoir of labour which could be more effectively utilized through . . . the opening of new lands for settlement . . .' in International Bank for Reconstruction and Development, *The Economic Development of Ceylon*, Colombo, Ceylon Government Press, 1952, Part one, p. 33.

[4] 'There are indeed vast numbers of marginal workers of low productivity rendering poorly paid personal services, as well as people engaged in other forms of precarious employment or disguised unemployment of a precapitalistic character who should be moved to new jobs . . . There is (a) net increase in income obtained by transferring available manpower from these precapitalistic forms of employment of very low productivity to exports or industrial activities of much higher productivity.' Raúl Prebisch, 'Commercial policy in the underdeveloped countries,' in *American Economic Review*, May 1959, p. 255.

current output with only some small fraction of the quantity of labour currently employed in it.

It is obviously true, not only of agriculture, but of any industry and, indeed, in any country, poor or rich, that the larger the quantity of tangible capital per worker, the larger will be output. But there is nothing inherently wrong with labour-intensive methods of production. If capital is scarce and expensive, it will be economised by associating much labour with it and this is appropriate to the quantitative distribution of resources in the economy. If, in conditions of relative capital-scarcity and labour-abundance, a firm is profligate with capital and frugal with labour, it will be bankrupted; and if a State enterprise operates on the same lines of policy, it will waste resources and diminish income in the economy.

This does not mean that a country is not better off, if past generations have accumulated and it now has much capital. But it does mean that, given the quantities of different resources that it does possess, there is some production function that is appropriate to the structure of resources and if, in some country, labour is relatively abundant, it is appropriate to use much of it in combination with other factors.

It is not right to speak of an excess of labour in some industry, merely because fewer of them can do the same job, if only there were more capital. Thus the second proposition does not prosper.

A third proposition is that excess labour occurs because fewer of them can produce the same output in some industry, *the quantity of other resources remaining unchanged.*[5]

This is equivalent to saying that the marginal product of labour is zero. Can it occur where labour receives a positive wage? It can, if the firm is composed of a family or simulates a family. Children contribute nothing to the family income but they are permitted to consume along with those who do, and this is because they are in their early years looked upon as consumption goods or as investment

[5] 'What happens to the vacancies created by workers shifting from one industry to another . . . ? All these vacancies can remain unfilled because the workers were not needed in the first place to turn out the given volume of production.' A. J. Jaffe, *People, Jobs and Economic Development*, Glencoe, Ill., The Free Press, 1959. 'During the second stage (as distinguished from the first, S. R.) . . . there will be no further outstanding increases in productivity *as a result of a mere transfer of man-power*' (S. R. italics). Economic Commission for Latin America, *Analyses and Projections of Economic Development*, New York, United Nations, 1955, Part I, p. 7. 'If disguised unemployment . . . in agriculture (is) widespread . . . , as (it) in fact (is), then these people could . . . be organized for certain types of capital goods production without reducing agricultural output. They add nothing to output now.' N. S. Buchanan and H. S. Ellis, *Approaches to Economic Development*, New York, The Twentieth Century Fund, 1955, p. 56.

goods. 'Children' of mature years may be treated by the family in the same way.

But, excepting the family case, the proposition becomes implausible. A retail shop, it is said, has some number of clerks waiting on trade. If one of them leaves, he is not replaced but those remaining produce the same volume of service.

Now it may be that something has happened between the periods before, and after, the clerk's leaving, so that labour has become relatively more expensive (and other factors, therefore, relatively cheaper). If this is so, factors are recombined in accordance with economising criteria and, indeed, fewer clerks, because they have more co-operant resources with which to work, will produce the same output. But this takes us back to the second proposition about excess labour supplies which did not prosper.

Suppose 'something' did not happen; labour did not become relatively dearer. One now asks: if the firm could have produced the same output with less labour and at no additional expense in other factors, why did it employ the extra clerk?, why did it wait for him to leave voluntarily?, why did it hire him to begin with?; or, if it hired him in ignorance of the correct number, did experience not teach that the extra man was, indeed, extra?

The position that firms do not dismiss excess workers but wait only for them to leave voluntarily and then apply a policy of non-replacement says that income maximisation is a product of happenstance. It is a possible axiom for explaining market behaviour but not a plausible one.

We are left with three remaining propositions: labour supplies are excessive (4) when people are seasonally-employed;[6] (5) when there are unemployed; and (6) when 'too many' are in some sector so that wages are less for some class of employment in some sectors than in others.

Seasonality or casualness of employment *per se* does not prove excess. Some industries have peak and trough periods of activity and the magnitude of difference between the volumes of employment between the two periods is large.

Some people prefer irregular employment and will even be prepared to sacrifice income to take such employment rather than one in which they are regularly employed. Others have a dispreference for irregularity and for them a higher wage is necessary, during the

[6] 'The seasonal character of agriculture accounts for much of the reported unemployment.' Jaffe, op. cit., p. 89.

hours they work, to compensate for the insecurity of on-and-off-again employment.

Surely one cannot say labour is in excess supply because an industry—however important it is in the economy—is seasonal. So long as the community's preference function is such as to offer a price for the products of the industry that is high enough to warrant the payment of a wage to labour (and prices for other factors it uses), for the seasonal peak period, which attracts labour (and other resources) to the industry, then it is consistent with income-maximisation by the community that the industry should survive.

If the irregular nature of period of activity in the industry cannot be corrected, there is no way out; wages will simply compensate for dispreferences. If it can be corrected, by giving attention to the schedule of work or re-organising things in some other way, then it will pay to do so, if the costs of re-organisation are not larger than the wage savings occasioned by the lower hourly rates that attract workers to the now-regular employment.

If re-organisation does not occur and the industry remains casual or seasonal, workers released in trough periods may find other employment. If they do not, why do they not?

We are led to the fifth proposition: labour is in excess supply if some of them are unemployed.

Some proportion of the labour force is unemployed in the most prosperous countries and in their most prosperous times. To some extent, these unemployed are composed of people between jobs in seasonal employments; to another extent, they are people between regular employments. If there is still a residual to be accounted for they must be people whom it is not worthwhile to employ at the price prevailing for even the lowest-paid employments. That is, if there are unemployed in addition to those frictionally unemployed, it is because wages are downward-inflexible and, through one instrument or another, a floor has been built under the price of labour in the economy as a whole. Thus, an excess supply of labour, when it takes the form of outright idleness, is a price-caused phenomenon. It occurs because a price is established for labour that does not clear the market. At this price, the number making themselves available for work exceeds the number that will be taken up by the market and some stand idle.

We come now to the sixth, and final, proposition on the meaning of excessiveness.

If the floor under the price of labour is higher than the competitive price and is made effective for wage labour but not for own

account labour, workers not worth the 'enforced' wage will crowd into self-employment and push downward imputed labour incomes there. There will be excessive numbers in own-account employment in the sense that fewer would be there, and the services of labour in this employment would receive a higher remuneration, if the price of labour in wage employment were permitted to fall. In this case, excess is not superficially obvious; it is hidden because excessive numbers are concealed by the condition that they are employed.

The same outcome is produced by the enforcement of higher-than-competitive wage floors in some wage occupations and not in others. In this case, as in the self-employment case just discussed, fewer than the optimum number are employed in the wage-floor occupation and more than the optimum number—excess supplies—in occupations in which wages are free to fall, and the excess is hidden.

Excess here, as in the open idleness case, is price-induced.

Thus, of the six proposed meanings for excessiveness, only the fifth and sixth seem to have merit. Yet it is strange that, when one hears excess supplies of labour discussed in the poor countries, the sixth meaning is rarely mentioned and the fifth (outright unemployment) is interpreted to be caused by some structural defect in the economy rather than inflexible prices; it is the first four and the fifth in this non-price sense that have currency both in popular and intellectual discussion.

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THE GEOGRAPHICAL DISTRIBUTION OF MOTOR CARS IN GREAT BRITAIN

In the recent growth of motor vehicles the most striking feature in the richer countries of the world has been the rapid spread of the private car. Although Britain, like the other countries of Western Europe, is still a long way behind the United States and Canada in the number of cars per head, she already has the world's highest number of cars in relation to road mileage, and the rate of growth recently has been rapid.

The increase in motor cars in Great Britain can be seen from Table I:

Table I

MOTOR CARS IN GREAT BRITAIN, 1938 TO 1959

	1938	1947	1955	1959
Number of cars (thousands)	1,944	1,944	3,526	4,966
Indices:				
1938=100	100	100	181	255
1955=100	55	55	100	138
Cars per 1,000 of the population	42	40	71	99

The total number of cars registered in Great Britain in September 1959 was two and a half times what it had been in 1938 or in 1947, and nearly 40 per cent. greater than it had been only four years earlier, in 1955. In relation to population, cars had gone up from about 40 per thousand just before and just after the war, to about 70 in 1955 and nearly 100 in 1959. There is now roughly one car for every ten people, compared with one for every three in the United States.

The distribution of car ownership is, however, far from even throughout the country. To begin with, there are marked differences between England, Wales and Scotland, as Table II makes clear.

The figure for Wales is appreciably below that for England, and that for Scotland is even more markedly lower. Even in 1959 Scotland still had 30 per cent. fewer cars per head than England; as we shall see later, there are also marked differences between Northern and Southern England.

TABLE II

CARS PER THOUSAND OF THE POPULATION, ENGLAND, WALES AND SCOTLAND

	Cars per thousand		1959 as percentage of 1955
	1955	1959	
England	74·5	102·7	138
Wales	63·9	91·8	144
Scotland	49·5	70·5	142

Similar contrasts exist for motor cycles and for goods vehicles. For motor cycles they are even more striking than for cars, but for goods vehicles they are less marked. The figures are given in Table III.

TABLE III

MOTOR CYCLES AND GOODS VEHICLES PER THOUSAND OF THE POPULATION, 1959

	Motor cycles	Goods vehicles
England	37·1	27·1
Wales	25·1	25·2
Scotland	15·7	21·2

Scotland in 1959 had only a little over 40 per cent. as many motor cycles in relation to her population as England. Considerations of topography and weather no doubt have something to do with this.

None of the three countries, however, is a homogeneous unit and a further breakdown by counties is necessary to bring out the differences between urban, mixed and rural areas and between industrial and residential areas. This is given in Table IV, which lists the counties in order of their ownership of cars in relation to population, using as a measure of ownership the number of private cars registered at 30th September 1955 and 1959 respectively, in relation to the official estimates of population for June 1954 and 1958 (the latest available at the time of compilation). Geographical counties have been taken as units, including in them their associated county boroughs and their Scottish equivalents. Thus Glasgow is included in Lanarkshire, Edinburgh in Midlothian, Birmingham in Warwickshire, Liverpool and Manchester in Lancashire. The only exceptions to this are that the three Ridings of Yorkshire, because of their size and diversity, have been treated separately, each with its associated county boroughs, the City of York, following the Registrar-General's

practice, being included in the West Riding; the County of London has also been treated as a separate unit.

If we look first at the counties at the top end of the scale, say with 120 cars per thousand and over in 1959, we see that they tend to fall into two main types. There are first those which are mainly rural, with sparse populations and few large towns. Indeed, the two highest of all are Radnor, with 171 and Montgomery, with 158. This category includes counties from all three countries, Berwick, Kirkcudbright, Orkney, Caithness, Kinross and Sutherland in Scotland; Radnor, Montgomery, Cardigan, Pembroke and Merioneth in Wales; Hereford, Rutland, Huntingdon, Cornwall and Westmorland in England, together with some, like Dorset, Cambridge, Oxford, Devon, Wiltshire and Somerset, which are mainly rural, though with a few larger towns. Secondly, there is another type of county, namely those in the outer area of Greater London and the adjoining Home Counties, where population and industry are growing rapidly on the basis of wide suburban dispersion. Such are Buckingham, Surrey, Hertford and Bedford.

Turning to the next category, those with 119-100 cars per thousand, we can divide these also into two groups. First, there are to be found here most of what might be called the 'mixed' counties, which are partly rural and partly urban. Examples come once again from all three countries, Nairn, Perth, Moray, Wigtown, Dumfries, Peebles, and Roxburgh from Scotland; Anglesey, Brecon, Carmarthen, Flint, Denbigh and Caernarvon from Wales; Lincoln, Shropshire, Hampshire, Suffolk, Sussex and Norfolk from England. Secondly, in this range we find the industrial areas of the West Midlands and the South-East, as evidenced by Gloucester, Warwick, Leicester, Middlesex, Kent, London and Essex.

The third group, made up of counties with 99-80 cars per thousand, is more heterogeneous. It includes the industrial counties of the North Midlands, Cheshire, Stafford, Nottingham and Derby, and also the mixed urban and rural counties of Northern England, like Cumberland and the North and East Ridings of Yorkshire. Of the Scottish counties included some are mixed, like Aberdeen, East Lothian and Selkirk, while others are rural, but Highland, like Argyll and possibly Inverness, though the latter might be called mixed because the town of Inverness forms a large proportion of the total population of the county. Monmouth just scrapes into this group, but is better considered along with Glamorgan in the group below.

The lowest group, with less than 80 cars per thousand, is almost confined to the industrial areas of South Wales, Northern England and

TABLE IV

COUNTIES IN ORDER OF CARS PER THOUSAND OF THE POPULATION IN 1959

	Cars per 1,000		Index		Cars per 1,000		Index
	1955	1959	1955=100		1955	1959	1955=100
120 and over				*119-100 (contd.)*			
Radnor	121·6	170·8	140	Carmarthen	84·8	106·8	125
Montgomery	132·8	157·6	119	Banff	78·4	106·1	135
Berwick	109·4	144·9	132	London C.C.	71·3	106·0	149
Bucks.	108·8	144·9	133	Peebles	80·2	105·6	132
Dorset	105·7	140·5	133	Roxburgh	78·4	105·1	134
Surrey	103·0	140·0	136	Flint	75·8	104·4	138
Oxford	102·9	137·8	134	Essex	68·5	103·0	150
Cambs.	121·3	137·2	113	Denbigh	78·3	102·8	131
Hereford	103·0	137·0	133	Caernarvon	77·7	102·7	132
Rutland	97·4	136·5	140				
Hunts.	107·1	136·1	127	*99-80*			
Herts.	99·1	135·6	137	Cheshire	73·6	99·5	135
Somerset	103·2	135·6	131	Aberdeen	73·2	99·2	136
Cornwall	114·4	134·3	117	Argyll	68·6	98·0	143
Berks.	100·3	134·1	134	Cumberland	70·7	97·3	138
Westmorland	105·0	133·3	127	Notts.	68·6	93·9	137
Kirkcudbright	111·2	133·1	120	Staffs.	65·9	91·2	138
Cardigan	105·9	132·1	125	Derby	64·3	90·4	141
Pembroke	98·0	131·9	135	Yorks. N.R.	65·3	89·0	136
Orkney	93·9	130·3	139	Inverness	62·0	86·8	140
Beds.	94·4	128·8	136	Selkirk	65·0	85·5	132
Caithness	78·1	128·0	164	E. Lothian	61·9	84·8	137
Kinross	93·0	127·6	137	Yorks. E.R.	60·1	84·1	140
Sutherland	95·6	124·7	130	Monmouth	51·1	80·9	158
Kincardine	97·0	122·4	126				
Devon	93·1	121·9	131	*Less than 80*			
Merioneth	88·6	120·7	136	Yorks. W.R.	57·5	78·8	137
Wilts.	88·1	120·4	137	Glamorgan	50·2	78·6	157
				Ross & Cromarty	57·9	78·3	135
119-100				Northumberland	55·6	77·5	139
Lincs.	87·6	118·7	136	Clackmannan	49·5	77·3	156
Shropshire	88·4	118·6	134	Angus	54·9	76·7	140
Gloucs.	87·9	118·5	135	Fife	49·9	76·0	152
Hants.	86·1	117·7	137	Shetland	45·1	75·2	167
Suffolk	88·3	117·4	133	Ayr	52·1	74·2	142
Sussex	87·0	117·0	134	Stirling	46·9	70·4	150
Middlesex	84·5	116·1	137	Midlothian	50·5	70·2	139
Nairn	88·0	116·0	132	Lancs.	49·4	68·9	139
Worcs.	88·3	115·7	131	Dunbarton	48·4	66·8	138
Norfolk	88·3	115·4	131	Durham	41·3	62·3	151
Warwicks.	88·6	115·0	130	Renfrew	42·8	61·1	143
Perth	84·5	114·8	136	Bute	35·7	57·8	162
Moray	81·7	114·0	139	W. Lothian	35·4	55·3	156
Northants.	82·4	112·2	136	Lanark	30·6	46·8	132
Wigtown	92·2	112·0	122				
Kent	78·3	111·5	142				
Dumfries	74·9	110·0	147				
Leics.	80·0	109·7	137	England	74·5	102·7	138
Anglesey	89·2	108·1	121	Wales	63·9	91·8	144
Brecon	77·7	107·9	139	Scotland	49·5	70·5	142

Scotland. It includes Glamorgan, to which may be added Monmouth with just over 80, the West Riding of Yorkshire, Lancashire, Northumberland and Durham, and in Scotland, Clackmannan, Angus, Fife, Ayr, Stirling, Midlothian, Dunbarton, Renfrew, West Lothian and Lanark. The clustering of the counties of the industrial Clyde Valley at the bottom end of the scale is most marked, for the bulk of the population of Scotland comes in this group, and the biggest concentration comes at the bottom of it. The only non-industrial counties in the group are Highland or insular, namely Ross, Shetland and Bute.

The difference between the three countries, therefore, are a reflection, as might be expected, of their more urban areas. The highest levels of car ownership are to be found in the most rural counties of all three countries, together with the Outer London suburban areas. As far as the rural figures are concerned, it is not surprising to find this 'sparsity factor' operating. Populations are small, distances are great and public transport facilities poor. Most farmers have cars and so do very many other country dwellers, where as yet not many of the rank and file of urban factory, office and shop workers do so. The actual numbers of cars involved in these rural counties are small in relation to road mileage, though high in relation to the sparse population. Rural road congestion is not usually due to the cars of country residents, but rather to through commercial traffic or tourist traffic from the towns.

The differences between the highly urbanised areas are more interesting. There is a fairly regular descending order from Outer London, to Inner London and the West Midlands, followed by the North Midlands, then South Wales and Northern England, with the Central Scottish industrial belt at the bottom. Lanarkshire (including Glasgow) had in 1959 47 cars per thousand, as against 62 in Durham, 69 in Lancashire and Glamorgan, 91 in Staffordshire, 106 in the County of London and 115 in Warwickshire (including Birmingham). Midlothian, including Edinburgh, had 70, as against 118 for Gloucestershire, which includes Bristol, a city of comparable size. On the other hand, Surrey had 140 and Buckinghamshire 145, figures equalled or excelled only by rural Dorset, Berwick, Montgomery and Radnor.

If we look at the rate of increase in the number of cars per thousand over the period 1955-59 a rather different picture emerges. The biggest increases, of 50 per cent. and more, were found mainly in the counties with low ownership rates. These were mostly industrial, e.g. Monmouth, Glamorgan, Clackmannan, Fife, Stirling, West Lothian and Durham, and also Essex, much higher up the list, but dominated by the industrial area of East London. They did, however,

also include some rural counties where car ownership was particularly low. The biggest increases of all, indeed, were in Shetland (67 per cent.), Caithness (64 per cent.) and Bute (62 per cent.). In all these cases, however, the actual numbers of both cars and of people, are very small and population is slightly decreasing. The increase in Bute coincides with the opening up of ferry services to the mainland, while Caithness shows a concurrent fall in motor cycles.

The smallest increases, of less than 30 per cent., were in some of the rural counties, usually those where car ownership was already high in 1955—notably in Cambridge, Cornwall, Montgomery, Kirkcudbright, Wigtown, Cardigan, Huntingdon and Westmorland. Increases were small also in Anglesey and Carmarthen.

There is thus evidence of a levelling-up process. The older established industrial areas of the North and West, where the ownership of cars is still markedly lower than elsewhere, are beginning to catch up on the South. In some of the rural areas, on the other hand, where the use of cars is already widespread, there are signs of a slowing down. The great bulk of these counties, however, some three quarters of the total number, show increases of between 30 and 49 per cent., that is, within ten per cent. or so of the national average.

What explanations can we give of these differences in the ownership of cars between the main urban and industrial areas? The most obvious starting point is the differences of income. International comparisons make it clear that car ownership tends to vary with the level of average incomes, though Knox has pointed out that Switzerland, for instance, has a level in relation to population that is unduly low compared with its average standard of consumption per head.[1] In Britain the Oxford Institute of Statistics Savings Survey found close relationship between car ownership and income level in 1952-53.[2]

When we attempt to test this on the basis of local areas, we are hampered by lack of adequate data. Professor A. D. Campbell's figures suggest that real incomes per head in Scotland are about 10 per cent. lower than the average for the United Kingdom as a whole,[3] while for Wales Dr. Nevin suggests that incomes per head may be as much as 20 per cent. below the United Kingdom average.[4] Yet we have found that cars per head are appreciably higher in Wales than in Scotland, especially in the main centres of population.

[1] F. Knox, 'Some International Comparisons of Consumer Durable Goods.' *Bulletin of the Oxford Institute of Statistics*, February 1959.

[2] L. R. Klein, 'Major Consumer Expenditures and the Ownership of Consumer Goods.' ibid. November 1955.

[3] *The Scottish Economy*, Cambridge, 1954. Ch. 5.

[4] E. Nevin, 'Gross National Product of Wales.' *Bulletin of Oxford Institute of Statistics*, February 1956.

Differences within the three countries, and especially within England between North Midlands, and South are, however, more important. At the county level we have the figures for personal incomes in relation to income receivers collected by the Inland Revenue in their Income Census of 1954-55. These are not altogether satisfactory, since they refer incomes and income-receivers to the county of assessment and not to that of residence, and this will generally be where their place of employment is situated. Thus there is a very large group assigned to the City of London, and the figures for Middlesex are also

TABLE V

AVERAGE PERSONAL INCOME ASSESSED PER INCOME-RECEIVER, AND CARS PER THOUSAND—MAIN INDUSTRIAL AREAS

	Personal income per income receiver, 1954-55 £	Cars per thousand 1955
Outer London (Surrey, Kent, Essex, Hertford)	541	84
West Midlands (Warwick, Stafford, Worcester, Gloucester, Leicester) . .	561	81
North Midlands (Nottingham, Derby, Cheshire)	538	70
Northern (Lancashire, West Riding)	536	53
South Wales (Glamorgan, Monmouth)	508	50
North-Eastern (Durham, Northumberland)	521	46
Clyde Valley (Lanark, Renfrew, Dunbarton)	516	34

exaggerated, since it includes the West End area, the four parts that go to make up the County of London being shown under their respective county totals. There are similar, but smaller exaggerations for the counties which include other large cities containing the plant and offices of many large firms. However, if we omit the City of London and Middlesex we can get reasonable approximations for the Outer London area. Table V compares personal income per income-receiver in 1954-55 with cars per thousand in 1955 for some of the main industrial areas. It should be remembered that the figures for cars in Surrey, Kent and Essex exclude those parts of the geographical counties that fall within the County of London, whereas the income figures include them, insofar as incomes are assessed there.

There is some evidence of a difference in average personal income as between Outer London and the West Midlands on the one hand,

and the more northerly and westerly industrial districts on the other, particularly South Wales, the North-east and the Clyde Valley. This is the more true since the Outer London figure is reduced by the omission of the incomes of many of the residents in this area who are assessed in the City of London or Middlesex. If Middlesex is included the average personal income figure becomes £572, but this is as certainly exaggerated. Car ownership is unchanged at 84 per thousand.

On the other hand, the personal income figures for Lancashire and the West Riding come out relatively high, probably because of the inclusion of employees from outside the area employed by firms whose place of assessment is in Manchester, Liverpool, Leeds and Sheffield. There is, however, nothing clearly corresponding to the regular descending order which we observe in car ownership.

The pattern of car ownership, therefore, appears to reflect other factors besides relative incomes. There seem to be different patterns of spending which make a man with a given income in Surrey or Warwickshire more likely to have a car than one in Durham or Lanarkshire. One possible influence is housing. One would expect that, income for income, people who live in the dispersed garden suburbs of Surrey or Hertfordshire would be more likely to find cars necessary than those who live in the tenements of Glasgow or in the closely packed streets of cottages characteristic of Northern English industrial towns.

A comparison of the housing statistics for the conurbations, as given in the reports of the 1951 census, throws some, but not much, light on this. The figures for the average number of persons per room shows very little difference between Greater London, the West Midlands, West Yorkshire, South-East Lancashire and Merseyside. All lie between 0·71 and 0·79. Tyneside, with 0·88 persons per room and Central Clydeside, with 1·23, were, however, markedly higher than the rest and this may have some bearing on the low incidence of cars in these areas.

Further light is thrown on the problem by a comparison by conurbation of the distribution between social classes of males of 15 and over, occupied or retired. This is summarised in Table VI. We have distinguished between Classes I and II taken together, including employers, professional, managerial and upper clerical workers, Class III, skilled manual and routine non-manual workers, and Classes IV and V together, semi-skilled and unskilled workers.

The high proportion in Greater London in Classes I and II, and the low proportion in Classes IV and V, correspond to a high figure for cars per thousand of the population in this area. Similarly, the

low proportion in Classes I and II, and the high proportion in Classes IV and V, in Tyneside and Central Clydeside, fit in well with the low car ownership in those areas. For the other four conurbations, the figures are inconclusive and throw no fresh light on the higher car ownership in the West Midlands compared with Lancashire and the West Riding. On the other hand, Liverpool does in fact have markedly fewer cars per thousand than Manchester, which is what the class distribution would suggest.[5]

TABLE VI

SOCIAL CLASSES BY CONURBATION, 1951

Conurbation	Percentage of males 15 and over, occupied or retired, in classes		
	I and II	III	IV and V
Greater London	21·5	54·7	23·9
West Midlands	14·8	57·9	27·3
West Yorkshire	17·8	55·1	27·0
South-east Lancashire	16·5	54·0	29·6
Merseyside	15·4	51·7	32·9
Tyneside	13·4	55·9	30·7
Central Clydeside	13·6	54·1	32·4

A further line of approach is to compare the geographical distribution of cars in Britain with that in certain other countries. This has been done for the United States, as representing the direction in which we are going, and for France, where the number of cars per head is at present much the same as in Britain.

In 1958 the average number of cars per thousand of the population in the Continental United States was 327. This includes taxis, which are omitted in the British figures. The six states with the highest figures are given below, together with their average personal incomes per head:

	Cars per thousand	Average personal income per head $
Nevada	423	2,423
California	413	2,523
Wyoming	403	2,038
Florida	400	1,836
Kansas	396	1,787
Connecticut	388	2,821

[5] Cars per thousand: Manchester 1955 49·8; 1959 68·4
Liverpool 1955 38·0; 1959 54·8
Birmingham 1955 77·7; 1959 100·1
Glasgow 1955 26·8; 1959 40·5

These were all states with high average incomes, but mostly with dispersed populations, being either sparsely populated, like Nevada, Wyoming and Kansas, or suburban, like Connecticut, or urban but dispersed like California.

At the other end of the scale, the six states with the lowest car incidence were as follows:

	Cars per thousand	Average personal income per head $
New York	270	2,578
North Carolina	270	1,317
Arkansas	254	1,151
West Virginia	240	1,554
Mississippi	221	958
District of Columbia	210	2,514

These include four states with low incomes, two of them with the lowest incomes of any state, but they also include two rich, but urban areas, New York and the District of Columbia. The latter is, of course, entirely urban, while New York State is dominated as regards population by the metropolitan area of New York City.

Other states such as Massachusetts, Illinois and Pennsylvania, which are dominated by the metropolitan centres of Boston, Chicago and Philadelphia, also have car ownership rates well below the national average, though not so low as the poor states of the South Atlantic and East South Central Regions. On the other hand, the sparsely peopled states of the Mountain and West North Central Regions mostly have well above the average number of cars per head.

Car ownership in the United States thus seems to reflect the two-fold effects of sparsity and average incomes. High rates are to be found in the more sparsely peopled states and also in some of those with the highest incomes. Relatively low rates are found in the most highly urbanised areas, including some with high incomes, but also in the poorer states of the South East. There is little evidence of differences in spending patterns between urbanised areas with similar average incomes, but possibly an analysis of units smaller than states would show whether any such tendency exists.

For France the figure of 'voitures particulières et commerciales' at 1st January 1959 also include taxis and possibly some light commercial vehicles as well as private cars. The number per thousand of the population for France as a whole was 112, as against 99 for cars only in Great Britain.

High ownership rates were found for some of the more populous departments; Seine, which includes Paris, topped the list with 151. The departments containing the cities of Marseilles, Lyons and Bordeaux had fairly high figures, ranging from 130 to 119, as had the Paris suburban department of Seine-et-Oise. On the other hand, many rural departments also came high on the list, a group of these in the South-east coming immediately after Seine and having figures ranging down from 144 to 130. The two areas most similar to the older industrial areas of Britain, namely the two Northern industrial and mining departments of Pas-de-Calais and Nord, had low figures—75 and 88 respectively. The six lowest places on the list were occupied by Pas-de-Calais, Corsica and four departments in Brittany.

Thus the effects of sparsity and varying average incomes are evident in France; but the low figures for the two Northern mining areas and for Brittany suggest varying spending patterns also, since these are not unduly low income areas compared with many departments of the Centre and South, which have much higher ownership rates.

In conclusion, the geographical distribution of motor cars is clearly influenced by the sparsity and the income factors. Incomes being more or less equal, ownership tends to be higher in rural or outer suburban areas than in highly urbanised areas. As between areas of similar population density, ownership varies fairly directly with average incomes, if the differences in these are substantial. Thus the Highland counties tend to form an exception to the general pattern of high rates in rural counties in Britain, while the American South East has much lower rates than the Prairie and Mountain States. Greater London and the West Midlands have higher figures for cars than Tyneside or Clydeside.

There remains a residue of differences, however, which do not seem to reflect sparsity or income levels at all closely. Why do people in Staffordshire, or Lancashire, or the West Riding, or Glamorgan still tend to have more cars than people in Durham or Lanarkshire? Why are there more cars per thousand in Marseilles than in Lille? Variations in traditional spending habits, possibly bound up with differences of occupational structure, provide the most likely explanation.

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Pages 83/84 deleted, advertising